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The Pennsylvania Livestock Breeders' and Dairymen's Association (1916)

REPORT
of the
FIFTH ANNUAL MEETING

January 22nd, 1930

Harrisburg, Pa.

ROBERT F. BRINTON,
President, West Chester, Pa.

R. H. OLMSTEAD,
Secretary-Treasurer, State College, Pa.

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The Dairy Industry in Pennsylvania Dairies—1929

By ROBERT F. BRINTON

President Pennsylvania Dairymen's Association

ANOTHER year has gone around since we last gathered to discuss the problems relating to the business of dairying. It can be truthfully said that during that period we have made notable progress in a number of activities, which have, directly or indirectly, had a bearing on the advancement of our industry. To cover the whole subject would take entirely too long, so I will briefly review its present status—some things accomplished and some things yet to be done.

A few months ago, Joseph R. Grundy, then President of the Pennsylvania Manufacturers' Association, now U. S. Senator, was called before the Senate Committee which was investigating lobbyists. His statement regarding the relative importance of Pennsylvania's Manufacturers and the lack of importance of manufactures in what he called the "Backward States," brought out the fact that Pennsylvania stood second in value of manufactured products and that five States produced over 50% of the country's output.

Examination of official records shows that Pennsylvania's position as a dairy state is very similar to its position in manufacturing, *viz:*—fifth place when ranked according to farm income from sale of milk and milk products and the figures for the whole United States show that the first nine states produced over 52% of the total value.

A map shown on page 6 shows that dairying is somewhat more general over the United States than is manufacturing but that on the whole the important dairy states are the same states in which manufacturing is also very important. The question is—do prosperous farm communities create a demand for manufactured products or do large manufacturing centers create a demand for dairy products? Surely there must be some direct relationship between these two entirely different industries.

THE VALUE OF THE DAIRY BUSINESS TO PENNSYLVANIA

Few persons who are not directly connected with some phase of the dairy business know its value to our State and to its many rural communities. Few city manufacturers, even merchants of smaller towns, realize the magnitude of the industry behind the milk bottle which comes to their doorsteps each morning. The total value of milk and milk products sold from Pennsylvania farms exceeds $100,000,000 per year.

Listed in 1927 Census of Manufacturers (Published by U. S. Dept. of Commerce) are 241 different kinds of products manu-

factured in this State. Of this large number only 14 exceed in value the output of the dairy cow. By the time milk is transported, processed, bottled, and delivered to the consumer, it practically doubles in value so that it is safe to say that the consumer pays annually, close to $200,000,000 for Pennsylvania Dairy Products.

The money which city consumers pay for their milk is largely responsible for the prosperity of many small towns throughout the State. The average country milk plant distributes about $400,000 of city money to its farmer patrons annually and there are many of them that distribute over $700,000.

The dairy business brings in a fairly uniform income during every month of the year, rather than a seasonal income such as would come from wheat, cotton, tobacco and potatoes.

Many towns throughout the State do everything possible to foster their manufacturing plants and forget all about the dairymen in the community who really bring more cash to their banks than do the manufacturing plants.

Tuberculosis Eradication

During the past year the State Bureau of Animal Industry has made notable progress in the eradication of tuberculosis under both the area and individual herd test plans. On January 1, 1930, there were 29 modified accredited counties in the State and eight other counties which have been completely tested. The total number of herds and cattle under supervision was as follows:

	No. Herds	No. Cattle
Area testing plan	120,806	822,152
Individual testing plan	12,472	186,282
Total	133,278	1,008,434

There are 1513 townships in the State and of these 1026 in 59 of the 67 counties are tested and 27 townships are waiting to be tested. This means that 75% of Pennsylvania's 1,340,000 dairy cattle population are under supervision. This, we believe, is a wonderful achievement and speaks well for the progressiveness of our dairymen.

The opposition to the tuberculin test which for the past few years has created quite a bit of turmoil in some sections of the State, seems to have almost entirely died out and many hundreds of dairymen who at one time declared they would never permit their animals to be tested have since gone through with the test. Many of them now state that the clean herd which has replaced one which was badly infected, is giving more milk than was ever obtained before. A number of the distributors of milk in our large cities state that they are now able to obtain all their supply from herds which have passed the test. Many local Health Boards are now requiring that all milk sold must be from tuberculosis free

herds, whether the milk is pasteurized or not, and the indications are that this practice will become general.

Contagious Abortion

Last year we reported that blood testing for abortion was being carried on in 1902 herds in the State. The number of herds that have done blood testing is now 3118. Of these, 270 have been awarded Abortion-free certificates. The interest in the control of this disease is becoming greater each year. Some sections which are free from tuberculosis are now talking of doing blood testing on an area basis. The sections which still have a large amount of tuberculosis eradication work to do will not be able to push the abortion control so rapidly. This will not be due to lack of interest, but because it is still difficult to find large numbers of animals for replacement purposes, which are free from both diseases.

That Boards of Health are beginning to take notice of the possible relationship between undulant fever and contagious abortion is evident by recent action in Philadelphia. In that city no raw milk may be sold after March 1st, 1930, which does not come from abortion-free herds. Many suburban districts around Philadelphia already require that all their supply come from herds which are free from this disease. Until very recently, dairymen were only interested in the control of this disease from an economic standpoint but it is possible that before long they will be even more interested from the standpoint of protecting human health.

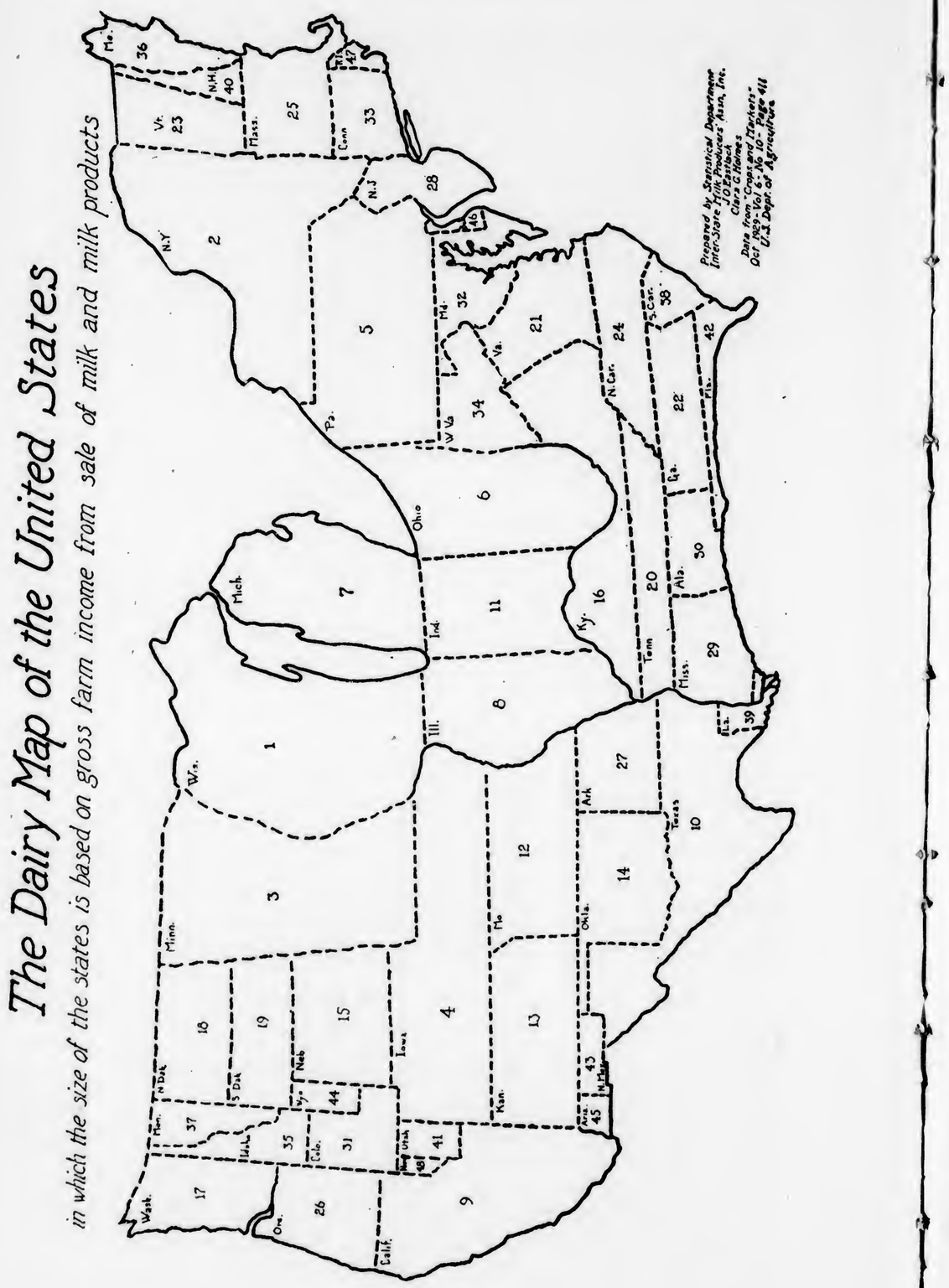
Legislation

When I was a boy I frequently heard some of my father's associates say that "we need more legislation," and "if we could only get more legislation our problems would be solved." At that time I did not understand what or why more legislation was needed or even why farmers could not always secure any additional laws that they wanted. Recent experience has taught me to believe that dairymen or any other class of farmers can secure any reasonable legislation wanted if they put forth united action.

During the past few years we have, by working together, secured the passage of many helpful and important acts. To even list them would take too much time but I will remind you that during the last session of the Legislature we had passed:—

1—A Sanitary Milk Code.
2—A new Law providing for the Incorporation of Co-operative Associations having capital stock.
3—Amendments to the Co-operative Act of 1919.
4—A new law provided for the payment of occupation taxes in place of a tax on horses and cattle.

In this connection it is perhaps permissible to state that your President took an active part three years ago in the repeal of the



tax on horses and dairy cattle and also that he was instrumental in preventing its re-enactment during the sessions of 1929.

Another place in which your President feels that he has been of service is the elimination of certain companies which advertised remedies which were sure cures for contagious abortion. This was done by working closely with the representatives of U. S. Dept. of Agriculture who have charge of enforcing the Federal Food and Drugs Act. As a result of this activity, carried on in a very quiet way, I think it is safe to state that no abortion prevention medicines are now being sold to innocent dairymen.

At our meeting a year ago we had before us a resolution which endorsed certain legislative bills giving greater quarantine powers to the Bureau of Animal Industry. Many of our members felt that it was dangerous to give this additional power to the Bureau and voted against the resolution. Your President spent quite a lot of time going over the situation with those in charge of this work and received their assurance that there would be no reason to fear the enactment of this measure. Nothing has been heard of these laws since their passage, so we presume that no one has been injured thereby.

Future Problems

The dairy farmers of the State by their united efforts have solved many knotty problems in the past and there are still a number to work on. I would like to briefly outline a few for our members to think about. They are:

Increased Production.—In our State, and throughout the country as a whole, dairy farmers are better organized than any other class of agricultural producers. Due to this fact they have, during the past ten years, received more net return than have the producers of grains and other farm crops. This has had a tendency to induce many farmers to go into the dairy business until we are right now facing an over-production of dairy products. There is more butter in storage this winter than there has been for many years and the price has reached the lowest level since 1916. Other manufactured dairy products are just as plentiful. If this condition continues, dairymen will be clamoring for farm relief as are other agricultural producers. The Federal Farm Board will probably not be able to do much to aid us directly, but if it can assist the grain growers of the central west to a better sale of their crops it will unquestionably deter further expansion of dairying. Some sections of Pennsylvania (particularly the southern central) are also producing more milk than ever before. Farmers in these sections would do well to consider what is the probable future demand, before investing still more money in the dairy business.

Western Competition.—Only a few years ago each community produced its own milk and other dairy products and the price received by dairymen in any section was entirely a local matter. Today, there are glass lined refrigerator cars which can bring whole

milk from Wisconsin or Indiana to our own markets in very little more time than it takes to haul it from some sections of our own State. This means that every dairy farmer in Pennsylvania is in direct competition with practically every other dairyman between the Delaware River and the Rocky Mountains. Western producers have many low cost advantages which we do not have and as they do not have nearly so many urban centers in which to market their milk we can expect that they will be making strenuous efforts to capture the markets, which, for so many years, we have considered all our own. If this western milk and cream is as good as we ourselves produce we cannot do much toward curtailing its eastward flow. But we have a right to demand of those agencies which have charge of the inspection of our food supply, that this western milk and cream be up to the same high standard as that which is produced within the State. We already have Federal sanitary laws which protect us from low quality Canadian dairy products, so let us see to it that we protect both our Pennsylvania consumers and producers from low quality milk and cream. Since the selling of milk is so often a community matter, it is to the advantage of every dairyman in the State to not only improve his own milk but to help his neighbor do likewise.

We hope that all dairymen will urge and encourage the state officials in the early enforcement of the new milk code. Some men will probably oppose its enforcement until they realize that they can gain a better market by its strict enforcement than they can without it.

Unnecessary Expansion.—Another danger which dairymen are facing today is that of undue expansion to their business due to the efforts of railroad companies and Boards of Trade which are more interested in their own prosperity than that of the farmers whom they profess to help. There are times and places where it is perfectly proper to encourage increased milk production but there have been cases where railroad agents have advised farmers to take up dairying when farm conditions were such that the enterprise could not become a financial success. In these days of motor truck competition, railroads are only interested in freight which requires a long haul and are not interested in developing dairying in those sections which are close to market.

Chambers of Commerce and Service Clubs have likewise done dairy promotion work. Some of it has been of distinct advantage to the community but on general principles we would warn farmers against increased expansion unless it can be clearly shown that there is a good market ready to receive the kind of product which they can produce at a profit.

Let's change the slogan that "prosperity follows the dairy cow" to "prosperity follows better marketing methods."

Future Market Demand.—Only a few years ago we produced within the state all the milk and dairy products which we consumed. Today we produce only a small proportion of the butter, cheese

and condensed milk, consumed in our state, and it is reasonable to suppose that with our rapidly growing manufacturing centers it will not be a great many years before Pennsylvania will be in the same class as New Jersey—*viz:* consuming more liquid milk than is produced within its borders. When this time comes, Pennsylvania dairymen should be prepared to take advantage of the opportunity to supply our markets with the very best quality of liquid milk and table cream and let those states which are farther west produce *all* our butter, cheese, condensed milk and an increasing larger amount of ice cream material. This does not mean that all producers should immediately go into the liquid milk business but it does mean that young far-sighted dairymen should prepare themselves to produce a quality product.

Increased Consumption.—Dairy farmers of this and other states have, through the work of the various Dairy Councils, made notable progress in educating consumers in the food value of milk and its products. There is still a great deal more which must be done before we can keep our markets in good condition at all times. Right now we are faced with enormous stocks of butter in storage—over 30,000,000 lbs. more than this time last year. This is a lot of butter but it would require only a 4-ounce increase per person per year, to wipe out the entire thirty million lbs. Four ounces per person means only twelve "pats" of the average size found on hotel butter plates. It is certainly up to us dairymen to eat our four ounces as quickly as possible and show our city friends that they will benefit themselves by doing the same thing.

Needed Legislation

One of the most important things needed at the present time is a definition of "A" milk which can be used with slight modifications all over the state, and proper authority to prevent milk from being so labeled unless it meets the defined requirements. The milk code of 1929 states that no person shall sell milk with the label, "A Milk" unless a definition is filed with, and approved by the State Secretary of Health.

This lack of uniformity in definition tends to confusion in the minds of consumers and forces producers to change their methods whenever there is a change of buyers.

Another piece of needed legislation is one which will prevent dealers in oleomargarine from having a number of salesmen working from a store with but one license. There was a bill presented last year which passed both houses but was vetoed by the Governor because its wording was such that it made the law unconstitutional. We should see to it that this bill becomes a law at the next session.

State College

Following our annual meeting of last year about fifty of the dairy leaders of the State gathered to discuss the possibility of obtaining a new Dairy Building at State College. Dr. L. M.

Thompson, First Vice President of the Association, acted as Chairman; R. F. Brinton, as Secretary. The sentiment expressed by the members was so overwhelmingly in favor of working for such a proposition that it was agreed that a Committee should be appointed by the Chairman (himself to be included) to confer with Dr. Ralph D. Hetzel, and find out if it would be possible to secure a new building at an early date. This committee was composed of: Dr. L. M. Thompson, Chairman; W. S. Wise, Alan Miller, Henry Woolman, and H. D. Allebach.

Some weeks afterward they visited Dr. Hetzel at the College and will probably report later.

In conclusion I wish to thank the other officers and the members of the Association for the loyal support they have given me during the four years I have been Secretary and during the one year which they have honored me with the Presidency of this organization.

Electric Refrigeration in the Cooling of Milk

By JOHN E. NICHOLAS

Dept. of Farm Machinery, Penna. State College

THE importance of cooling milk immediately after production has been ascertained by painstaking research. Careful handling under sanitary conditions during production will assure good biological, physical and chemical properties of milk, but proper cooling is necessary to preserve these qualities.

Milk should be cooled as soon and as rapidly as possible immediately after production. To obtain these results, the milk producer is essentially concerned with the type and economic operation of his cooling equipment.

There are two types of electric milk cooling systems found on Pennsylvania farms: (1) the wet, and (2) the dry box systems. In the wet system the cooling coils are immersed in the water which are cooled by the refrigerant contained in these coils, and the water in turn cools the cans of milk which are placed directly in this water. In the dry system the cooling coils are immersed in the brine tank or else are exposed to the air of the box. Milk placed in the dry box either in cans or bottled is, therefore, cooled by the air which is cooled in passing over the coils or along the brine tank and then passes on to the milk containers.

The investigations made on 38 farms disclosed a variety of practices in the method of handling the milk during the cooling process. The methods employed govern largely the economic operation of the refrigerator as well as the ultimate results obtained.

On the farms where these observations were made there were eight different kinds of machines found. Some of these machines use ammonia, others sulphur dioxide and still others, methyl chloride.

Approximately the same number of wet boxes and dry boxes were studied. As a rule where dry boxes were located the milk was bottled directly on the farm.

When any attempt is made to make an analysis of the economy of operation and the possible advantages to be derived from the two types of systems in the process of milk cooling, there should be some rational basis on which such analysis could be made. But the observations made disclose the fact that there are too many variables and uncontrolled factors for any such analysis at this stage of the study. To illustrate the point the following items

indicate the manner in which milk was handled during the process of cooling under the wet and dry system.

Manner in which milk was handled:

Wet Type

1. Cans of milk are set in box with no precooling.

2. Precooling by aerator through which available water is circulated, put in cans and then cans set in box.

3. Precooling by aerator through which refrigerated water from the box is circulated, put in cans, then cans set in box.

Dry Type

1. Precooling by available water supply, bottled and set in box.

2. Precooling by available water supply, put in cans and set in box.

3. Precooling by water and brine, put in cans or bottled and set in box.

4. Precooling by brine alone, bottled and set in box.

5. Precooling by refrigerant alone, put in cans and set in box.

6. Precooling by refrigerant, bottled and set in box.

It is well to observe that in the dry box system, the aerator is an essential and integral part for precooling of the milk. Where available water supply is circulated through the aerator the milk is precooled by the water and therefore this does not impose the precooling load on the refrigerating machine.

There is probably no serious objections to the use of the milk cooling equipment for the preservation of perishable foods other than milk, provided that separate compartments are arranged and sanitary measures are taken to safeguard the milk compartment. In many instances, without any such precautions, the following additional uses were found for the wet or dry boxes: Cooling of water for drinking purposes, preservation of pies, raw meat, cooked meat, fruits, cooling of puddings, chocolate milk, eggs, as well as source of ice supply.

It is evident that any two similar systems, one of which cools milk alone and the other both milk and perishable foods, will not show the same economy of operations for the same quantity of milk cooled.

A machine will operate most economically under the load for which it was designed. A 5-ton truck carrying a ½-ton load is a wasteful operation. This applies equally to the milk cooling unit.

Let us enumerate some of the factors that influence the economy of any milk cooling plant.

1. Method of precooling.
2. Use of water, brine and refrigerant in precooling.
3. Relative size of machine to that of the box.
4. Quantity of milk cooled for a definite size equipment.
5. The number of times the box is open and the time it remains open.
6. The number of times it is necessary to defrost the coils or tanks in dry box.
7. The number of times water is changed in the wet box.
8. "Proportions" of the box.
9. The quantity of water in box to quantity of milk cooled.
10. The construction of the box.
11. The location of the box.
12. The location of the milk cooling equipment in the milk house.
13. The location of the milk house.
14. The construction of the milk house.
15. The arrangement of the box and machine.
16. The additional load placed in the box other than the milk.

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The New Milk Law—Act No. 428

By RALPH E. IRWIN

Chief, Penna. Bureau of Milk Control, Harrisburg, Pa.

ACT No. 428 was prepared by a committee of sixteen representatives from organizations composed of milk producers, milk distributors, milk inspectors, health officials and consumers. The object of the Act is a clean safe milk supply so regulated as to promote fair competition and increase the consumption of milk.

The Act does not centralize control in the State. It is rather a "levelling Act," seeking to bring about uniformity. For many years each municipality has had the right to pass milk ordinances and provide inspection. This right is not changed, as set forth in Sections Two and Eleven of the Act. However, the municipality is required to have an ordinance which at least meets the requirements of the State Act. The State Department of Health has been responsible for the sale of milk in townships of the second class. It now has the added responsibility of the sale of milk in municipalities without ordinances as required by the Act.

This is the first State law providing for inspection of all public milk supplies.

Section Twelve authorizes the Advisory Health Board of the State Department of Health to adopt regulations for the enforcement of the Act. On September 18th, the Advisory Health Board provided regulations whereby applications for State permits to sell milk must be submitted by February 1, 1930, and permits issued will be effective for one year beginning September 1st.

The designations used in selling milk shall be Certified Milk, Raw Milk and Pasteurized Milk. Other grades or designations will be used provided the definition of such designation is filed with and approved by the Secretary of Health. You no doubt are particularly interested in the sale of Raw Milk to the consumer. Section Six provides that Raw Milk shall be obtained from tuberculin tested herds. This has been a requirement of the Advisory Health Board since April, 1923. Milk from untested herds may be sold if pasteurized.

All dairy farms from which milk is sold under the provisions of this Act are to be provided with a milk house or milk room used exclusively for the handling of milk. When milk is placed in bottles suitable equipment must be provided for cleansing milk containers. Bottle caps should be obtained in tubes and placed on the bottles with a mechanical capper.

We do not understand that the Act requires the sale of milk in bottles. Small distributors will no doubt use containers owned and cleansed by the consumer. When this is done we desire that the container shall show the name of the consumer and whether the milk is Raw Milk or Pasteurized Milk.

The milk control work carried on by the State is free of charge. There is no fee for applications, permits or inspections. The application forms for Raw Milk and Pasteurized Milk differ so that those who apply for forms should state whether they wish to sell Raw Milk or Pasteurized Milk. Those who are now selling milk and desire to continue should apply for an application blank. After the application form is prepared and submitted to the Department you may continue the sale of milk as you are now doing until further notification through correspondence or through the visit of a representative from the Department.

Raising Cows On the Minimum of Milk

By C. B. BENDER

Dairy Husbandry Dept., New Brunswick, N. J.

SOMETHING is wrong with the general order of things when the dairy farmers of the state of New Jersey annually send $3,000,000.00 out of the state for the purchase of replacement cows.

Not only was the money being spent outside of the state but the purchased cows were not solving our production problems. The cows of course were tested for tuberculosis but many of the cows aborted and aggravated the abortion problem in our herds. Furthermore, mastitis and other disease conditions were being brought in which did not make a healthy dairy condition. Lastly then, purchased cows were not raising our herd averages production as high as was expected.

We knew that the only way of attacking this problem fundamentally was by a constructive breeding program followed by a program stressing the raising of our own replacements.

Under the existing methods of calf raising only a small percentage of the replacements were being raised. These calf raising methods were the whole milk and gruel feeds.

New Jersey farmers shipping all of their milk into the metropolitan areas of New York and Pennsylvania at a fair price made the cost of raising calves on whole milk prohibitive. The only other method available was the feeding of gruel because no fluid skimmilk was to be purchased. Although the gruel method of raising calves was sound the majority of our dairymen refused to use it because of the care and labor involved.

Sound dairying is based on breeding for production. Without raising the offspring there is no benefit derived from the use of good bulls.

The main problem we were compelled to face was the development of calf ration which could be fed dry with a minimum of whole milk.

With this idea in mind we started experimental work on the problem and from results obtained after feeding trials on every heifer calf dropped in the college herd, we found that it was possible to take calves off of whole milk at 40 days of age and they would subsist on a dry grain mixture.

In 1924 the experiment was reoutlined so that the following conditions had to be fulfilled.

(1) Animals to be taken off of whole milk at 30 days of age.
(2) Calves to be fed on a dry grain mixture.
(3) Calves had to be normal in weight and height at 6 months of age.
(4) Keep the cost of raising calves to a minimum.
(5) Reduce the labor.

In our previous experiments a straight cereal ration was used. As this ration did not give us normal growth we felt this condition would be improved by the addition of some milk product such as skimmilk powder. This ration was tried out and the results were very good but we did not get normality at six months of age, the calves had a tendency to scour and the ration was comparatively expensive.

We tried other combinations but they did not measure up to our standards, so we decided to use a product of the abbatoir called soluble blood flour. This product when fed as 12½% of the mixture gave us the results which we desired. Furthermore, the calves showed a decided bloom and freedom from that common digestive trouble, scours.

The mixture as fed consisted of:

100 lbs. yellow corn meal
150 " ground oats
50 " wheat bran
50 " linseed oil meal
50 " soluble blood flour (Swift & Company)
4 " steamed bone meal (pulverized)
4 " limestone (pulverized)
4 " salt

The feeding method recommended is as follows:—The calves are allowed to suckle their dams until they are forty-eight hours old. They are then weaned and receive a maximum of three quarts of milk a day. Three feedings a day are recommended for the first ten days, afterwhich the milk can be given in two feedings until the calves are thirty days old. When the animals are one week old a little of the mixture should be put into their feed box and some rubbed on their muzzles after each milk feeding. This will accustom them to the ration and they will soon be eating it. If larger amounts of whole milk are fed, the calves will not take readily to the mixture. Good alfalfa, clover, or mixed hay should also be put before them when they are a week old.

When the calves are three weeks old the milk should be reduced, either as the amount of liquid fed, or by the dilution with water at the same temperature as the milk. At the end of thirty days the calves will be subsisting on the dry fed mixture, legume hay and fresh water.

When the calves are thirty days of age they should be consuming one pound of grain a day. Enough grain should be put in front of the calf in the morning to take care of it for twenty-four hours, give the calf all the hay it wants and allow it to have access to fresh water at all times. The grain should be increased gradually so that by the fifth month the calf should be eating from 5 to 6 pounds a day. Six pounds of this grain is our maximum grain feeding, the balance of the nutrients should be gotten out of the hay.

After the calf is six months of age any good growing mixture may be substituted.

Animals grown in this manner have been carried through into production and they have been normal in every respect. One of them having made a world's record in both fat and milk and others produced on a par with half sisters by the same sire which had been raised on milk.

In some cases dairymen reported that the calves had a ragged appearance the first couple of weeks off of milk feeding, others reported that the calves did not relish the mixture when all milk was removed. We have found that in practically every case the trouble was due to one of four things:

1. An inferior blood product such as ordinary dried blood or blood meal.
2. Failure to accustom calves to the mixture at one week of age.
3. Letting the calves suckle the cows for 30 days and then putting them on the mixture.
4. Feeding larger amounts of milk than are recommended.

This method of raising calves will reduce the labor cost to a minimum, will keep the total feed cost between $28.00 and $34.00 a head for the first six months and will practically eliminate digestive scours.

Approximately 800 dairy farmers are using this method of raising calves in New Jersey. Letters have come in from dairymen in every state of the Union either asking for information on the dry fed grain mix or reporting satisfaction with the method.

This feeding method seems to have met a definite need in raising replacements.

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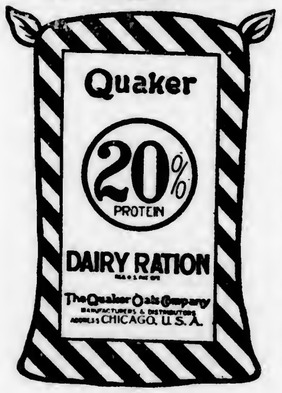

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Annual Business Meeting

THE Annual Business Session of the Pennsylvania Dairymen's Association was held on January 22nd, 1930, in Fahnestock Hall, Y.M.C.A. Building, Harrisburg, Pa., at 1:30 P.M., president Robert F. Brinton, presiding.

The minutes of the preceding annual meeting of the Association were read by secretary R. H. Olmstead, and were approved.

The auditor's report of the Treasurer's accounts was approved by a committee composed of G. R. Gearhart and L. K. Shoemaker, and presented by the treasurer, R. H. Olmstead. There was a cash balance of $21.26, but also one unpaid balance of $50 due for printing the 1929 annual report. The accounts of the secretary and the treasurer were approved by the meeting.

A nominating committee, composed of T. R. Harney, Ivo. V. Otto, and W. S. Wise, presented the following nominees for officers of the Association for the coming year.

President, R. F. Brinton, West Chester, Penna.
First Vice President, Dr. L. M. Thompson, Montrose, Penna.
Second Vice President, M. T. Phillips, Pomeroy, Penna.
Third Vice President, E. S. Reichard, Transfer, Penna.
Secretary and Treasurer, R. H. Olmstead, State College, Pa.

There being no further nominations from the floor of the meeting, the secretary was, on motion, directed to cast a favorable ballot for the candidates named.

The committee on resolutions, composed of J. R. Robertson, Dr. E. S. Deubler and M. J. Grimes, presented the following resolutions which were on motion, approved:

1. That this association commend the work of the Pennsylvania Bureau of Animal Industry in developing the Pennsylvania Plan for eradication of abortion disease in individual herds. We suggest that proper legislation be enacted to further protect the dairymen by requiring that all cattle for dairy and breeding purposes coming into Pennsylvania be tested in an approved manner for abortion disease.

2. On account of the ever increasing work evolving upon the Bureau of Animal Industry we recommend that the proper authorities be urged to furnish adequate room and help to this department so the dairymen may receive more prompt service.

3. That it be the sense of this association in view of the educational character of the Farm Products Show that no breeding or dairy cattle be admitted for exhibition purposes unless accompanied by health certificates covering tuberculosis and abortion disease.

4. We recommend that the State Board of Health be asked to define "A" milk, in order to avoid confusion in the minds of consumers and prevent unfair competition.

5. We commend the Governor, Secretary of Agriculture, Legislature and all those responsible for the progress they have made in providing facilities for housing the State Farm Products Show.

6. We believe that a larger and better exhibit of dairy cattle could be secured if the date of the show was changed to the fall of the year.

7. We wish to call attention of the dairymen to the statistics which show marked increase in production of dairy products in the state. Every dairyman should recognize the folly of overproduction. Due consideration should be given to any expansion in their dairy program.

The committee appointed last year to confer with Dr. Hetzel, president of Penna. State College, on the program of a new Dairy Building at State College, reported, through its chairman, Dr. L. M. Thompson, that they had not met with the plans and provisions of the college, as other proposed buildings were, in their opinion, just as badly needed as was a new dairy building. The chairman, however, reported that they were assured that a new dairy building was first on the list of new major buildings in the Agricultural School. The committee was on motion, continued, and that they should continue their efforts for the proposed project.

The following general committees were appointed by the president:

Committee to represent the Dairymen's Association on the Penna. Farm Products Show Committee: Robert F. Brinton, West Chester, Pa.; E. B. Fitts, State College, Pa., and Allan D. Miller, Susquehanna, Pa.

Committee to represent the Association in the Penna. State Council of Agricultural Associations: W. S. Wise, Meadville, Pa.; R. H. Olmstead, State College, Pa., and Robert F. Brinton, West Chester, Pa.

There being no further business before the meeting, adjournment was taken.

Milk in the Human Diet

By DR. R. A. DUTCHER

Professor of Agricultural and Biological Chemistry, Pennsylvania State College

FROM the standpoint of nutritional research, the story of the development of our knowledge regarding the nutritive value of milk is naturally the story of the development of our knowledge regarding the nutritive value of its products.

It will be necessary for me, therefore, to dwell to a considerable extent on research work which has led us to a more perfect appreciation of the nutritive value of milk.

I should like to ask you to go with me, for a few minutes, back to the beginning of our knowledge of milk and its products. We will watch the chemist and the biochemist gradually unravel some of the knotty problems that have been baffling scientists for many years. When we are able to tear milk apart into all of its components and feed and study these, we will discover why the dairyman can well be proud of producing and dispensing products of such health producing qualities. As a scientist I have often had difficulty in understanding how salesmen, manufacturers and dealers could enjoy selling many commodities that are sold on the market. I can understand, however, how a man can be most happy, proud, and clear of conscience who is in any phase of business which has to do with the production, manufacture, or sale of high grade dairy products.

Three Periods of Research

In a general way, there have been three periods in nutritional research, so far as the development of feeding standards for man and beast are concerned. It was natural, of course, that the greatest progress should be made and the beginning of a sound nutritional philosophy should be established as soon as the science of chemistry began to develop. The chemist soon turned his attention to foods and feeding materials and it was not long before he was able to classify foods and feeding materials on the basis of their chemical composition.

In other words, it was possible to classify foods on the basis of their content of water, protein, fat, carbohydrate, fiber and mineral matter. As a result, the nutrition worker seized upon these findings in order that he might devise a measuring stick, in the way of chemical standards, for men and animals. *The first measuring stick, therefore, was a chemical one.* Men and animals of certain sizes and weights should receive certain amounts of protein, fat, and carbohydrate daily if normal growth could be

expected. These discoveries were most helpful and many very fine contributions to knowledge have been made through the use of such standards.

Research work on animal-heat soon led to the development of calorimeters, instruments capable of measuring the amount of animal-heat emitted under various conditions. It was found that definite relationships existed between the amount of energy stored in the food, the amount of food eaten and the energy demands of the body. As a result of this work a new measuring stick was devised which I shall call the "energy" or "calorie" method of measurement. You are all so familiar with the necessity for calories that further mention is unnecessary except to say that the calorie standards did not ignore the chemical constituents, in fact it was recognized that a proportion of the calories must be furnished in the form of protein. These energy standards have been exceedingly useful in establishing fundamental and economic information concerning the feeding of men and animals.

During the past twenty years a new viewpoint has gradually developed, due to the fact that rations can be devised according to the best of chemical and caloric standards on which animals will not thrive, and in many cases diseases, known as "deficiency diseases," develop. This work has brought scientists, medical men and even the layman to appreciate, for the first time, the importance of the "little things in nutrition." Before I discuss this phase of work I wish to show how it really developed.

In 1881, a European investigator, by the name of Lunin, described experiments in which purified diets were devised according to the best of scientific knowledge of the period. Mice which received these diets did not grow. The addition of a small amount of milk, however, caused growth to be resumed.

Eijkmann, a Dutch physician, published a paper in 1897, in which he described experiments with fowls which had developed a paralytic disease, called beri-beri, on a diet of polished (white) rice. He found that the brown outer coating of the rice (bran) prevented and cured the disease and he was able to extract the curative material from the polishings by means of alcohol and water. He concluded that white rice contained a poison or toxin and that the rice bran possessed an anti-toxin-like substance.

In 1906, Dr. F. G. Hopkins, of England, repeated the experiments of Lunin and confirmed the latter's results. He found that two cubic centimeters of cow's milk contained something which was necessary for growth, which was not a protein, a fat, a carbohydrate, or a salt. In other words, he postulated that milk contains an "accessory food factor."

Vitamins Enter the Picture

It was not until 1910-12, that Dr. Casimir Funk, a Polish chemist, substantiated the work of Eijkmann, using extracts of rice bran, from which he isolated a crystalline material which

seemed to be curative in beri-beri, to which he gave the name "vitamine." At the time he prophesied that many so-called dietary deficiency diseases would prove, eventually, to be "vitamine deficiency" diseases.

In the meantime, small animal experimentation was being started at Wisconsin by McCollum and co-workers and at Yale by Osborne and Mendel. The outcome of this work was of the greatest importance to the dairy industry. In casting about for ideal purified proteins, fats, carbohydrates, and salts, three important discoveries were made, *i. e.*, (*1*) that all proteins did not possess the same growth promoting properties; (*2*) that the mineral elements deserved greater attention than they had received heretofore, and (*3*) that the vitamin hypothesis of Funk was confirmed in a very definite manner.

Time and space will not permit me to dwell on these interesting researches except to say that the superiority of animal proteins, particularly casein and lactalbumin of milk was established by Osborne and Mendel. Further study of the question revealed the fact that casein, lactalbumin and other biologically superior proteins contained certain amino acids in kind and amount not present in the inferior proteins. Thus, the dairy man and dairy technologist found one reason why milk and its products had always been of superior nutritive value.

It was found also that the best artificial salt mixtures were those that were patterned most closely after the mineral composition of milk. Later work has shown that calcium and phosphorus are present in milk in particularly advantageous proportion and quantity.

Almost simultaneously the Wisconsin and Yale investigators discovered the presence of a fat-soluble vitamin in butterfat, cod liver oil and egg yolk. It was not present in most plant fats and oils. Hence, another most important function of milk and milk products was added to the already growing list of nutritional factors.

Different Vitamins Described

McCollum and Kennedy suggested that these accessory factors be given letters until such a time as they could receive chemical names. The fat-soluble A of McCollum and Kennedy is now known as "Vitamin A." At about the same time McCollum and Kennedy found that Funk's anti-beri-beri factor was also needed for growth. As a result they suggested the name "Water-soluble B" which is now known as "Vitamin B." At that time the word "vitamine" was spelled with an "e." The letter "e" was dropped a few years ago and the word is now spelled "vitamin." The first syllable is pronounced as in the word "vital" and the last syllable is pronounced the same as the name of Andy Gump's wife. The accent, I might add, is on the first syllable.

Recently Vitamin B has been found to consist of two vitamins, *i. e.*, a heat labile anti-beri-beri fraction and a heat-stable appetite promoting and pellagra-curing fraction. The American workers tend to restrict the term "Vitamin B" to the former and have given the latter the name "Vitamin G." The British workers have coined the terms B_1 and B_2 respectively, to refer to these vitamins. Milk contains these vitamins also, Vitamin G (B_2) being present in the greater amount.

Vitamin C, the vitamin which cures scurvy, was discovered next. This vitamin was also found to be a constituent of normal milks. Our own research work and that of others, has shown that Vitamins A and C fluctuate in cow's milk, depending on the vitamin content of the diet of the cow. Under most conditions I should say that milk cannot be considered to be rich in Vitamin C, although the amount present is often appreciable.

Vitamin D, the vitamin which has to do with the utilization of calcium and phosphorus and proper bone and teeth formation, was identified by McCollum and co-workers. While this vitamin is also present in milk, it is never present in large amounts. Cod liver oil remains the richest natural source of this vitamin. A few years ago it was discovered that ultra-violet light produced results similar to Vitamin D, when allowed to shine on animals or children afflicted with rickets. Later, Hess, of New York, and Steenbock, of Wisconsin, discovered that Vitamin D could be manufactured in certain food materials by irradiating the food material with ultra-violet light. More recently an alcohol, called "ergosterol," has been isolated which is considered to be the parent substance of Vitamin D. When this alcohol is treated with ultra-violet light it becomes many thousand times more potent than cod liver oil, in the cure of rickets.

Vitamin E, the anti-sterility factor, was discovered by Dr. Evans and co-workers of California. This vitamin cures and prevents nutritional sterility in experimental animals. While milk and butter are extremely deficient in this vitamin, it does not appear to be a matter of concern for the reason that it is well distributed in other foods.

Vitamin F, which was thought to exist, is not recognized at present. This leaves a gap in our alphabetical scheme as recommended by American workers.

Vitamin G, the appetite, growth and anti-pellagra factor, is present in normal milks in appreciable amounts.

Our own work has shown that milk will be relatively rich in these health producing factors if the cow has been properly housed and fed. Our researches on pasteurization, drying and evaporating show quite clearly that these operations can be conducted without alarming amounts of vitamin destruction. In co-operation with Dr. S. I. Bechdel and Professor M. H. Knutsen we have shown that the Vitamin B complex in cow's milk is not completely dependent

on the ration and we have shown that she can manufacture this complex in her rumen by means of certain bacteria.

Importance of Vitamin A

If I may be allowed to digress at this point I wish to emphasize the great importance of Vitamin A in the diet. When this vitamin is omitted from the dietary a number of important pathological changes occur. Its absence is made manifest by loss of appetite and a resulting loss of body weight. An eye disease, known as xerophthalmia, develops which afflicts rats and humans alike. The resistance to bacterial infections is lowered and respiratory diseases invariably ensue. Sinus and tongue infections are common and we have noted involvement of the kidneys and reproductive organs. Physicians are able to apply the results of such findings to the treatment of human respiratory disease. I have been informed by eminent laryngologists that they have been able to alleviate many cases of sinus and respiratory infections by combining Vitamin A therapy, through the use of cream, butter fat, and cod liver oil, with their regular medical treatment.

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The Truth About Undulant Fever

By E. M. HARMON

Associate Editor, "Successful Farming"
Des Moines, Iowa

THIS whole question might be answered in one sentence—that sentence would be, the whole truth is not known. This is the main reason why scientists have said so little about the disease up to the present time. The true scientist who values his reputation will not make statements until he has all of the facts in hand.

To a large extent the same is true of the editors of reputable farm papers, magazines and newspapers, as well as for the writers, contributing to such publications. I know personally that several editors and writers have for years had most of the true information on undulant fever which has been given so much publicity recently. This information has been made available by the Bureau of Animal Industry, the Public Health Service, and both the veterinary and medical professions. It has not been given public publicity because there was not enough evidence available to make us believe it a serious menace. Furthermore, there was and still is evidence to cause us to believe that the broadcasting of meager information might do more harm than good.

During the past few months parts of this meager information have been seized upon by alarmists and propagandists. Some of the statements made have been true and some are half true. Other statements have been made of which no one knows whether they are true or not.

In the first place it is not a new disease. No one knows how old it is. Some of our present day scientists feel that there is every reason to believe that a disease which Hippocrates described in about the year 400 B.C. was undulant fever.

Bruce discovered the organism which causes this disease in about 1887. In 1897, Wright perfected the method of diagnosis by the agglutination test. Within the next ten years it was definitely proven that the organism causing malta fever was carried in goats milk.

It was not until 1918, that Alice Evans called attention to the close resemblance of this organism in goats milk to that which causes abortion in cattle. The point that we wish to emphasize here, however, is that this is not a new disease. It has probably been going on for decades in this country. It is doubtful if it is

any more prevalent now than it has been in the past. Neither is most of the true information which has had so much publicity new in any way. Scientists who have been studying this problem have realized that they do not know enough about it to give it publicity. However, in the hands of the alarmists this information has been given a tinge of sensationalism and combined with half truths has attracted much attention.

Another ridiculous statement would lead us to believe that there are 50,000 cases in the United States. In this connection, Dr. Van Es, of Nebraska, states: "It may suit the purpose of a propagandist or an alarmist to speak of 50,000 cases of undulant fever, but if their statements merely pertain to 50,000 people with positive agglutination titers they are gross exaggerations. A case of undulant fever should never be accepted as such unless clinical manifestations combined with serologic evidence warrant such a diagnosis or unless the Br. abortus can be isolated by the patient."

As a matter of fact, until June 1, of this year, 1926 cases have been reported in the United States over a period of seven years and five months. This is exclusive of Texas, Arizona, and New Mexico. Doubtless there have been many other unreported cases. Doubtless there are unreported cases today but when we have to go back over a period of seven years to find 1926 cases and realize that most of these are cured by this time, it is hard to see how one who values his reputation would hazard a guess of 50,000 cases in the United States today.

Another unjust insinuation is found in the fact that some of the propaganda leaves one with the impression that the disease comes entirely from drinking the milk of infected cows. We know that it is possible to contract undulant fever by drinking raw milk from infected goats. We have almost equal reason to believe that it is also possible to contract the disease by drinking raw milk from infected cows. The important point, however, is that there seems to be every reason to think that there are other modes of transmission of just as great or greater importance.

In this connection, Dr. C. P. Fitch, of the University of Minnesota, and one of the leading authorities on contagious abortion, states that many of the cases of undulant fever about which he knows are in men working in packing houses and with infected herds.

Dr. Hardy goes further to state that men are no more susceptible to the disease than women. Yet among the farm population nine times as many cases have been found in men as in women. This, he thinks, shows that a great deal of infection is taken in through the skin by people who are associated with herds which are infected.

Another fact which Dr. Hardy brings out is that there are only four cases per 100,000 population exclusive of packing-house employees in cities of over 5,000 while among packing-house em-

ployees there are 287 cases per 100,000 people. Also while children are the heavy milk drinkers yet there have been very few cases of undulant fever in this group. Most of it is found in people between 20 and 45 years old, which would indicate that it is primarily an occupational disease. These factors show the ridiculousness of the intimation that undulant fever comes solely from milk.

It is definitely proven that there are three types of this disease or three types of organisms causing it: The goat type of the organisms is much more virulent in its relation to man than either of the other two. Huddleston's work at Michigan with monkeys and Dr. Cotton's work at Washington with guinea pigs has emphasized this fact. In the same way the porcine or hog type is even more virulent than the bovine or cow type of the organism. In connection with these facts it is interesting to note that among the first 28 strains of the organism isolated from human blood Dr. Hardy found that 21 of them were of the porcine or hog type. Like most other scientists, however, who have studied this problem, he insists that it is too early to draw conclusions. In fact, all the way through, the men who know the most about it are the ones who are pleading for caution and more information.

In spite of these facts, however, we have seen information broadcasted which would leave one with the impression that milk is the one means of the transmission of this disease. Not long ago I saw a statement credited to the American Child Welfare Association as follows: "Since the source of this disease is to be found in milk of infected cows it is apparent that it can be controlled by the pasteurization of milk." There is one very definite mis-statement here in that pasteurization of milk will not control the disease. It would eliminate a part of the troubles. The other implied mis-statement rests in the fact that in a great many cases raw milk is not the source of undulant fever. Our medical authorities, the press, and everyone interested in human health should carefully guard the statements that they make in this connection as they are likely to create wrong impressions and do more harm than good.

One of the points which has not been given sufficient attention in some of the publicity which has gone out is the fact that pasteurization kills the organism. Pasteurized milk is perfectly safe. There is no excuse for anyone worrying about the contraction of this disease through drinking milk. If they have a pasteurized milk supply the danger is automatically eliminated. If they do not have a pasteurized milk supply and have any fear of contracting the disease the organisms can be destroyed by heating the milk to 140 degrees for a twenty minute period in the home.

While much of the propaganda which has come out has been detrimental to the dairy industry on account of unjust criticism of the industry, yet there has been a tendency on the part of some to go to the opposite extreme. One prominent publication has gone so far as to state that no one has ever been able to prove that this disease could be contracted by drinking milk and to leave the im-

plication that such probability is not possible. That, of course, is entirely wrong. We do not know how high a percentage of cases of undulant fever in this country can be traced to drinking raw milk but we do know that a great many of them are contracted in this way.

Of one thing, however, we can be sure. This disease is bringing to the livestock industry one of its greatest sources of loss, herds which would otherwise be profitable are unprofitable. We know too, that it is a disease that is comparatively easy to control. We know that the blood test is as reliable as that of tuberculosis or any other disease. With the facts in hand and with the evidence that it is possible to transmit the disease to man it behooves every livestock owner to take immediate means of controlling the disease in his own herd.

We know that this disease is the source of the greatest single loss to the dairy industry. The Storrs experiment station has shown a loss of approximately $44 per cow for every reacting animal, whether she aborted or not. The Nebraska station has shown losses of approximately $100 per cow for each year that the cows lost their calves. These figures check closely as it is true that reacting animals abort about 40 per cent of the time.

Studies by the Oregon station check this fairly closely, as to investigations on individual farms. The disease attacks the udder, reduces milk flow, causes weak calves, retained afterbirths and sterility. No one knows how prevalent it is. No estimates run above 20 percent. If 20 percent of our dairy cows are losing $44 per animal, the loss to the dairy industry is approximately $175,000,000 a year. It is proven that it is also a source of tremendous loss to the beef, cattle and swine industries. Just recently it has been recognized in poultry. The organisms have also been isolated from fistula in horses. We do not know how prevalent it is. We do know, however, that we have a test for it which is reliable. We have evidence of different states all over the country that through the application of this test, through the isolation of the reactors, and preparing sanitary precautions, the disease can be controlled. The fact that it is transmissable to humans is simply one more reason why the livestock industry of the country must come to itself and eliminate these tremendous losses.

Fifth Annual Banuqet

Pennsylvania Dairymen's Association

Masonic Temple
HARRISBURG, PA.

Wednesday, January 22nd, 1930

ROBERT F. BRINTON, Toastmaster

Addresses by

HON. W. F. SCHILLING
Member Federal Farm Board, Washington, D. C.

FRED H. SEXAUER
President, Dairymen's League, Inc., New York

HON. C. G. JORDAN
Secretary of Agriculture, Commonwealth of Pennsylvania, Harrisburg, Pennsylvania.

Herd Test Record Awards—
E. R. GEARHART
Pennsylvania State College, State College, Pennsylvania

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Some Functions of the Federal Farm Board

By Hon. W. F. SCHILLING
Member Federal Farm Board

THERE is one thing that will have to happen very soon for the good of all farmers and that is for their leaders to get together and decide that one organization with well-defined principles and policies is just a little bit better than four or five. With three or four solicitors rolling into a farm yard every few days asking a farmer to join this, that or the other in order to get assistance from the Farm Board, farmers will soon tell mother to put a few reminders upon these over zealous agents' heads.

The Farm Board doesn't care whether you are white, black or chocolate colored; what your politics are; what church you go to or whether you live in Pennsylvania or Podunk, so long as you want to co-operate in a broad way with your neighbors in a commodity group to sell your cheese, corn and cucumbers.

We want the farmers of America to stop guessing at what we are trying to do and sit down with their better three-fourths and study a marketing plan that will work. We want them to know that they have gotten out of the Old Hickory wagon stage and are in the gasoline age. We want them to understand that every trade and profession is organized. We want them to understand that chain drug stores and chain groceries and meat markets are stretching their tenacles and offering their services from coast to coast.

We want farmers to know that bankers are seeing the handwriting on the wall and are combining their resources to meet the demands upon them for greater service to their communities and constituents.

We want farmers to understand that as all others are organized they are in a hopeless position trying to go it alone. We want them to forget little neighborhood troubles and sit around a table to discuss their mutual and common problems.

The beginning of this co-operation must be in the neighborhood right at home for there can be no united effort where there is a division in the community with two or three leaders endeavoring to keep the farmers from joining a co-operative association. The next step will be that a regional or state program of these local representatives be formed to handle in a broader way the products of the locals. With the regional or state set-up of any commodity, the next step will be the organization of a national marketing agency owned and controlled by the farmers to market their commodity.

We want farmers to understand if they are producing a dairy commodity that they should champion that commodity first of all and show their appreciation and faith in their own effort by first eating the commodity themselves. If a man milking cows markets his milk or cream and then cashes his milk check and buys butter substitutes for his wife and family to eat, he should be ashamed to look a good honest old cow in the face.

We want the farmer to know that when he is overproducing a commodity he should slow up or he will ruin his own market. Now, to limit production of an agricultural commodity means much as there are so many unforeseen elements entering into the picture. First of all, there is the weather, always uncertain, and at best making the whole production program a gamble. Then there is weed control and insect control; pests that are ever to be reckoned with.

It is a matter of record, however, that the smaller crop acreage usually brings the largest amount in cash profit and keeping this in mind, when organized commodity organizations disseminate through their statistical departments that there is too much of a commodity on the markets for regular distribution and consumption, it is their duty to warn the producers of the danger of glutting the markets and to carefully adjust their production to the market needs.

This will not be easy as an invitation to limit production frequently brings disaster to the program for then the over zealous neighbor, anxious to profit by the limited production program, plants more than ordinarily and again the program is defeated.

I, however, am hopeful that farmers have gotten into a condition where they will listen and when an officially announced program for production is laid out for a commodity it will be observed and neighbors will watch each other to see that all are playing square.

Time, coupled with a liberal education along this line, will work wonders and I have every faith that the farmer will see the advantage of this very necessary co-operation and by so arranging his crops that he will bring his industry to a more profitable level.

There are far too many who regard the Federal Farm Board merely as a big loan agency for the purpose of loaning cheap government funds to farmers. I regret that this view is so generally accepted for it is the farthest from the thoughts of the framers of the Act and surely not the intent of the members of the Federal Farm Board. Our funds are merely for a temporary purpose—that of bridging over a period when the organization can, through retains or deductions, become master of its own financial activities and be placed upon a sound footing and assisted to go along on a permanently worked out marketing set-up.

That there will be opposition to Farm Board policies and activities goes without saying. If conditions in agricultural life have been such that the producer of a commodity could not make a respectable living for his wife and family when they were working long hours and using utmost care and that commodity was turned over to private sources to market and a good income was made by the dealers in charge of the second operation, then it was time that a study should be made as to where the farmer was lame. No one can deny the farmer this right. Others have secured it for themselves by organization and combining their efforts. If that remedy worked for them the farmer rightfully says, "Why will it not work for me?"

Every upheaval in rural life can be laid to unsound economic practices. We have gone through too many of these in the past decade to warrant their going unheeded.

It is far better for the rural class as such and surely much better for the country as a whole that we take a broad conception of the picture presented at this time and make such amends as will not only place six million farmers upon a much sounder financial basis but will assure the security and safety of our people as a whole.

Do not understand me to say that what will work for one farmer and bring him a full measure of prosperity will be the panacea for all—such is not the case but the Farm Board will endeavor to set up a program that will be safe for the industry as a whole.

Few people as yet understand the purposes of the Agricultural Marketing Act and criticize the Board unjustly. Some say the law never intended this or that. Let us see just what was intended. Here is Section 1 of this Act:

"DECLARATION OF POLICY"

"Section 1. (a) That it is hereby declared to be the policy of Congress to promote the effective merchandising of agricultural commodities in interstate and foreign commerce, so that the industry of agriculture will be placed on a basis of economic equality with other industries, and to that end to protect, control, and stabilize the currents of interstate and foreign commerce in the marketing of agricultural commodities and their food products—

"(1) by minimizing speculation.

"(2) by preventing inefficient and wasteful methods of distribution.

"(3) by encouraging the organization of producers into effective associations or corporations under their own control for greater unity of effort in marketing and by promoting the establishment and financing of a farm marketing system of producer-owned and producer-controlled cooperative associations and other agencies.

"(4) by aiding in preventing and controlling surpluses in any agricultural commodity, through orderly production and distribution, so as to maintain advantageous domestic markets and prevent such surpluses from causing undue and excessive fluctuations or depressions in prices for the commodity.

"(b) There shall be considered as a surplus for the purposes of this Act any seasonal or year's total surplus, produced in the United States and either local or national in extent, that is in excess of the requirements for the orderly distribution of the agricultural commodity or is in excess of the domestic requirements for such commodity.

"(c) The Federal Farm Board shall execute the powers vested in it by this Act only in such manner as will, in the judgment of the Board, aid to the fullest practicable extent in carrying out the policy above declared."

The rub of the whole business seems to be, in the eyes of many, the fact that farmers cannot by themselves borrow money or get individual assistance.

This is the very best part of the Act and it is the part that will bring business methods to the door of every farmer.

The Government will do things to help the farmer if he co-operates with his neighbor but when he chooses to go it alone the Government can do nothing for him. Further, if he thinks he can be helped by going it alone and refuses to join with his neighbors he surely is beyond hope of saving.

There are many people who believe in co-operation but are willing to allow their neighbors to do the co-operating, to set up the machinery, to pay for it, and to carry the load that should be prorated over every man who is to be benefited by organization. It will soon be found that the man who is outside a co-operative organization will not be in any position to assist in any way to better his condition on the farm.

I do hope that our co-operative commodity organization will not take too narrow a view of the industry as a whole for the commodity must be considered from a marketing viewpoint whether in co-operative or private hands.

Breeders Problems That Must Be Solved

By E. M. HARMON

Associate Editor "Successful Farming", Des Monies, Iowa

DURING the past ten years the dairy industry has made remarkable progress. Today we are producing between 125 and 130 billion pounds of milk a year from the same number of cows required to produce 89 billion pounds a decade ago. It is doubtful if any industry with anything like a comparable magnitude can show equal gains in efficiency.

It is worthwhile, however, to check on ourselves with a view to learning just what are the reasons for this increased efficiency. I believe when we do this we will have to agree that improved feeding practice, attention to pasturing systems, and better conditions of housing and management are the factors largely responsible. It is my candid opinion that we would have difficulty in proving that improved breeding practices or better breeding stock have had very much to do with it.

This highly developed efficiency on the part of our dairy herds is bringing on a new set of problems. Of primary importance to the breeder is the effect that the purebred is having on the dairy industry. A thorough study of this effect is not as reassuring as we would like to have it.

Today in the dairy herd improvement associations of the country one-third of all the purebred bulls are reducing production, another third are giving material increases and the balance are just about maintaining the standards set by these herds. This condition offers a challenge which must be met by the breed associations and by the individual breeders themselves.

We recognize the fact that the dairy herd improvement association herds are better than the average. We realize that it takes better bulls to increase production and profits in these herds than in average herds yet these are the herds and their owners are the men who are shaping the thought for the dairy industry. No breeder nor breed association can afford to see such a high percentage of its bulls cutting production and profits in these herds. This problem demands the best thought on the part of all of us.

Probably one of the things that has been especially misleading to us in the past has been our conception of records and the transmitting ability of animals. We must first realize that there may be a vast difference between the cows producing ability and her transmitting ability. We must not be led astray by phenomenal

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records made by sports or freak animals. We must come to the place where we will have information on the producing ability of entire families. It is only by knowing the general level of production within an entire family that we can hope to know the ability of the individuals in that family to transmit profitable production. I personally know of a great many individuals who have been led astray by an individual high record which probably meant nothing so far as the producing or transmitting ability of the animal in question was concerned. I know of lots of men who have been disappointed in herd bulls which they have purchased in just this way. Purebred Breeders must come to the place where they can give the prospective buyer more assurance in the way of uniformly good records than can possibly be obtained from an individual record on the dam of the bull or some other animal in the pedigree.

Another point of tremendous importance in selecting foundation animals is the ability to reproduce as well as to produce. In this connection I have in mind the Holstein herd at the University of Missouri. All of the animals in that herd are descended from three cows which were purchased 29 years ago. One of these original cows left a single daughter in the herd. This daughter was Missouri Chief Josephine, at one time the second highest record cow in the world and the highest record college owned cow. The record and the reputation which Missouri Chief Josephine made has been responsibile for the sale of thousands of dollars worth of foundation stock, yet the family itself was a failure. Only about 15 per cent of all the animals in the herd today are descended from this cow and only about 15 per cent of the surplus stock which has been sold comes from this cow. A few phenomenal records have been made but they have not been good reproducers. On the other hand one other of the original cows was a consistently high producer throughout her life and left three daughters all of which were good producers. More than 50 percent of the herd today is descended from this one cow. More than 50 per cent of the surplus stock sold have been descendants of her.

This illustration brings out a point to which purebred breeders have devoted entirely too little attention. We have reached the place where purebred breeders must put on the market foundation animals which are reasonably sure of being pure for profitable production and satisfactory reproduction. These are a set of problems which will challenge the best minds yet they must be met if the purebred industry is to do its part towards elevating the dairy industry to a high level of propserity.

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Problems of the Dairy Industry

By FRED H. SEXAUER
President, Dairymen's League Co-operative Ass'n, Inc.
New York City, N. Y.

WHEN the dairy industry is mentioned, naturally I think of the dairy farmer for he and his product form the foundation of any superstructure which may be reared upon the product of the dairy cow.

When any trouble occurs in the dairy industry the dairy farmer is blamed because of his alleged ignorance, his lack of ability to co-operate, and any other reason which justly or unjustly can be attributed to him. When anything beneficial or advantageous occurs, credit is assumed by every agency which comes into contact, either directly or indirectly, with the products which he has produced.

The dairy farmer has many friends who would save him from his faults and lead him out of his difficulties. Some of them are chosen by the farmers and some of them are imposed upon him. Publicly, they are all equally his friends and within his hearing, at least, proclaim that friendship to the world. Privately, almost all of them are his friends to the extent that it serves their private interests to be his friends, and altruism fades away with the jeopardy of the individual's interest. Perhaps that is only human, for it is no more than natural that "self-preservation is the first law of life."

There are many things that the dairy industry needs. Most of them could be supplied by the dairy farmers themselves, could they all be brought to look at their problems from the same viewpoint. Unfortunately, up to the present time, they have not been able to do that. This may be the fault of the farmers themselves. It may be the fault of the commercial leadership. It may be the fault of the governmental agencies' leadership, or it may be the fault of the leaders whom the farmers themselves have selected. Naturally, representing the latter group, I would not be human if I did not believe the fault lies mostly with some of the other groups.

Before we can decide as to whether the fault lies with the dairy farmers or with the leadership, or if with their leadership, to which branch or brand of leadership, it seems to me we must first classify some of the things which the dairy industry needs. We might classify these in the order of their relative importance, though perhaps not all of us would agree to that classification. To me it seems that the first thing which the industry needs, and again I must reiterate my belief that the industry means the dairy farmer, is:

A strong voice in the marketing program.

Well controlled promotional work.

Co-ordinated information on all phases of production and consumption, and

Under our present system of Government, effective tariffs and as a part of effective tariffs, legislation which will create conditions that make tariff, when once established, effective on the agricultural industry.

If the dairy industry needs these things, how is it to go about it to get them? Naturally representing a farmers' organization, it seems to me that the farmers' organization is the solution of the problem, but the solution of the problem itself presents many other problems. Farmer organizations are built upon the confidence of membership in those organizations, and confidence is an illusive thing, hard to build up, easy to destroy. It can be destroyed by farmers' organizations, bickering among themselves. It can be destroyed by those whose selfish interests seem to dictate that farmers' organizations are detrimental, or at least not beneficial, to their interests. It can be destroyed by the faint praise bestowed upon it by Governmental agencies, by the opposition of commercial interests, etc.

Fortunately, among the dairy organizations themselves, it has almost come to pass that difference in structure and difference in methods no longer, or at least, only to a minor extent, indicate difference of ideals and difference of purpose. The jealousies which years ago existed between neighboring organizations over type of organization, etc., have pretty much passed away, and because of that, these organizations have been able to weld themselves together so they come much nearer to speaking in one voice.

We still are faced, however, with the close relationship between the commercial interests of the dairy industry and the individual farmer, and their constant tendency to discredit farmer organizations and their constant tendency to tear down that confidence which has taken so much hard work to build. This, perhaps, is only natural also, but it does not seem to me that it indicates good leadership or a friendly interest on the part of the commercial interests toward the farmer when one of the agencies which the farmers themselves have established, to better conditions of the industry, is being destroyed or hampered by those who call themselves friends of the dairy industry and of the dairy farmer.

There is an expression called "damned with faint praise," and I do not know the experience of other dairy organizations, but to a considerable extent, some of us in the east have learned the meaning of that phrase. For years we have had in various Colleges, Departments of Agriculture, Divisions of Co-operative Marketing, courses in co-operative marketing, but it is only of late, in fact, almost only within the last few months, that anyone in these governmental branches has had the temerity to definitely state that any

particular co-operative association was a success or that it deserved the support of the individual producer, and yet just so long as those statements were not made, the organizations suffered because they were "damned with faint praise." Just so long as those things were not said, the very agencies which were established for the purpose of assisting co-operation, if they have not torn down confidence, at least during that period, have done nothing to build it up.

Some Colleges conducted debating schools on various methods of co-operation, rather than taking the type that was successful in their particular territory and using that as an example of what could be done, pointing out its good phases as well as its poor phases and pointing out its accomplishments as well as its failures.

The commercial interests engaged in the handling of dairy products are vast and far reaching in their character. They have in their control untold millions of dollars, untold resources in plants and equipment. They have available most of the brains in the industry, and yet under their leadership, the dairy industry was allowed to approach a time of terrific distress without a warning note being sounded, without a danger signal being posted. Under circumstances such as these, is the farmer to be blamed because he distrusts that leadership? And since this period of distress has arrived, just what have the commercial interests done to meet the responsibilities which the acceptance of their leadership should throw upon them? Have they gathered together and raised a fund for promotional work, for educational work, to eliminate the use of substitutes and promote the use of dairy products?

To my knowledge so far as they have gone is to ask co-operative organizations to take the burden of the leadership off of their shoulders and go forward and protect the industry by the formation of clearing houses or stabilization corporations, or something of that character. I only wish that the co-operative organizations in the country were sufficiently experienced, sufficiently aged and sufficiently organized to assume that leadership, but it looks as though the responsibility were going to fall upon their shoulders, whether or no.

I have not had very much experience in the milk business, I have not been connected with the industry in an executive capacity for many years, but I have been surprised and somewhat chagrined to note the way in which these giant commercial enterprises have dodged their responsibilities and thrown those responsibilities back on the individual farmers or upon the co-operative organizations when something like the past depression happened. It is a matter of pride to me to see how from east to west the co-operative organizations, in spite of their limited experience, in spite of their limited finance, in spite of the limited support which they have in the dairy industry, have taken this responsibility upon their shoulders in order to protect not only their members but every individual dairyman. Reviewing the history of the last few months, I believe

I can say without danger of successful contradiction, that the leaders in the dairy industry who have shown real friendship for the dairy farmer, were those leaders who had the responsibility for carrying forward the work of the dairy farmers' own organizations.

I want to say that I am proud of them. It makes no difference whether it is in New York, Pennsylvania, New England, Wisconsin or on the Pacific Coast, they have taken responsibility in this period far beyond what their strength, both financially and numerically, seems to justify.

I am glad to see that the Governmental agencies under the leadership of the Federal Farm Board are taking a more active part in the promotion of these organizations which have shown their resourcefulness, which have shown their willingness to accept the burdens of the industry. I am sure that under the guidance of the Federal Farm Board, with the advice of that wonderful group of men who compose the Advisory Council, we are going to see emanating from our Department of Agriculture, from the Divisions of Co-operative Marketing, information which is not only statistically correct, but which is also correct in its interpretation. I hope we never again will see a statement come from the Department of Agriculture, when the country is only on a one-half per cent import basis, to the effect that there is no danger of an overproduction of milk in the United States, and I am sure that, under the guidance of a commodity council and the Federal Farm Board, interpretations of statistics gathered, of that character, will not be made; at least, not until men practically engaged in the industry have first given them consideration.

Where has been the leadership in the effective tariff fights in the dairy industry? We were told that an adequate tariff would effectively solve our dairy situation; and who was it that asked for effective or adequate tariffs and after they were asked for who was it that supported those tariffs actively and militantly? The answer again must be, it was the co-operative organizations, assisted by other farm organizations. Was it the self-imposed leadership of commercial interests, was it the leadership of agricultural agencies, that drew up the schedules, that spent time and money supporting them?

If you will go back with me over the last tariff fight, I think you will agree with me that had it not been for the leaderships elected by the farmers themselves through their organizations, we would not have today appearing in the schedules anywhere near the rates on dairy products that now appear. I do not mean to minimize in the least the support or efforts of some of the Congressmen and some of the Senators, but just as an illustration, of what I mean, let me point to the tariff on casein:

It went through the House at 3½ cents and finally went through the Senate at 5½ cents, and during all of this period there was some perfunctory support given to the 8 cent schedule asked for by

co-operative organizations, but when the Dry Milk Industry wished a clearing house established so that information could be gathered and disseminated and advice as to production given them, it was the co-operative organizations who stepped in and very clearly demonstrated that the most effective measure in the protection of the dry milk industry would be a tariff on casein, and now we are getting some support.

We have had our own problems in our territory. We have had our problem of protection of our national markets. We have had our problems of protection of our local markets, and just as the commercial leadership failed in the national problem, so that leadership became opposition in our local problem, and in our local problem it was necessary to forfeit our position on national problems in order to solve the problem which we had locally. Today there is no one in that market but who, at least publicly, will grant that the position taken by the farmers through their organizations was a logical and right position, but it was only after terrific efforts had been put forth by the farmers themselves that other interests could be brought to see that position.

I want to say that for the first time, in that problem, farmers' organizations received the united enthusiastic support of the Colleges and extension workers in that program. For the first time it seemed to me that there was evidence that the forces which should be representing agriculture were uniting in its leadership. The commercial interests who have been the leaders in the dairy industry for the past many years must take a broader, more sympathetic view toward the farmers' problems, a more sympathetic view toward those problems through organization, not only in periods of prosperity, but during periods of distress and depression. If they do not, just as sure as the night follows the day, they are going to force organized farmers to compete with them in the market. There is no middle course. There is no desire on the part of farmers or farmers' organizations to compete with them. There is no reason why they should, except for the short-sighted leadership on the part of the commercial interests which has been so much in evidence during the past few months.

It would be much easier to appear at a Banquet and speak of things which are pleasant and of things which are impersonal, but if there is any reason for a great organization, such as the Pennsylvania State Dairymen's Association, it surely must be for discussion of problems as they exist in the industry.

Herd Honor Roll

A LIST OF

Cow Testing Association Members

Who Won a Place On the Herd Honor Roll

C. T. A. INFORMATION

539—Red Ribbons. . . . . 300–350 lbs. fat
189—Blue Ribbons . . . . . 350–400 lbs. fat
77—Purple Ribbons . . . . . 400 lbs. W

MERIT AWARDS

Holstein Cup—by Federation of Holstein Friesian Clubs.

A. C. Slifer
Lewisburg,
Union Co., Pa.
— Milk 13,878 lbs.; Fat 526.1 lbs.

Jersey Cup—by Pennsylvania-Jersey Cattle Club.

Sophie M. Geddes,
Danboro,
Bucks Co., Pa.
— Milk 7699 lbs.; Fat 4593. lbs.

Guernsey Plate—by Eastern Guernsey Breeders' Association.

Mrs. Henry Rea,
Farmhill Dairy,
Sewickley,
Allegheny Co., Pa.
— Milk 9748 lbs.; Fat 471.8 lbs.

Special Awards for High Grade Milk Production at State Farm Products Show:

Highest Quality Milk under Dairy Council Inspection, a silver pitcher awarded by the Philadelphia Inter-State Dairy Council.
J. S. Blank, Leola, Pa.

For First Place in raw market milk from T.B. free cows, the Dairymen's League awarded a clipping machine to—
Robert W. Eno, Honesdale, Pa.

HONOR ROLL

A place on the honor roll and a prize ribbon was conferred on each member of a regularly organized Cow Testing Association whose herd average production was over 300 pounds of butterfat during 1929. Eight hundred and five members qualified. Following is a list of these members arranged according to association membership and production average. The awards were divided into three groups according to amount of production: 538 red ribbons were awarded for herd averages between 300 and 350 pounds butterfat; 190 blue ribbons for averages between 350 and 400 pounds butterfat, and 77 purple ribbons for averages above 400 pounds butterfat. Two herds made an average above 500 pounds butterfat.

Adams County—(Adams Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
R. M. Spangler	Gettysburg, R. 7	8.13	R:GH	11546	389.6
Elmer A. Bubb	East Berlin	9.82	R:GH	10695	358.5
H. E. Brown	Fairfield	14.29	R:GH	10356	350.9
Roy A. Weaner	Gettysburg, R. 7	8.70	R:GH	10153	340.4
Roy W. Bream	Gettysburg R. 4	9.15	RA	8271	334.0
Paul Price	East Berlin	11.65	R:GH	9370	332.3
Paul E. Zepp	York Springs	8.50	GG	7158	329.3
Hiram H. Miller	Fairfield	8.74	RH	9356	326.8
John C. Leinart	Hampton	11.08	R:GH	9236	325.4
Guy Tanger	York Springs	5.55	RH	9307	311.1
Elmer J. Herr	Hanover	10.47	R:GG	6469	304.9

Allegheny County—(Allegheny Association)

Farmhill Dairy	Sewickley	7.16	RG	9748	471.8
Robt. Bamford & Son	Midway	21.21	RJ	8834	452.2
J. F. Byers	Sewickley	6.29	RG	7643	379.2
Ardarra Herd, Inc	Sewickley	7.41	R:GH	8983	372.4
R. M. Donaldson	Midway	14.66	RA	9017	360.0
Fairacres Farm	Sewickley	10.01	RG	7501	357.6
Arnold Farm	Clinton	8.35	RG	7378	341.5
Hankey Baking Co. Farm	Oakdale	13.45	Mixed	7150	336.0
E. J. Link	Coraopolis	14.91	R:GH	9640	324.1
Kehm Bros.	Oakdale	19.92	R:GJ	6987	320.3
Bell Bros.	Imperial	15.25	RH	9896	316.0
Lewis D. Parks	Sewickley	5.58	RG	6116	316.0
Vance Bell	Imperial	18.00	GJ	6160	315.2

Bedford County—(Bedford Association)

John E. Morris	Everett	7.08	R:GJ	7797	434.5
McKinley Way	Everett	9.25	R:GG	8994	432.4
Stanley Koontz	Lutzville	17.58	R:GJ	7813	420.3
Allen Eshelman	Everett	13.50	RJ	6958	371.7
Paul B. Stayer	Woodbury	10.00	Mixed	7941	367.6
Ross T. Snider	New Enterprise	12.17	Mixed	9206	359.8
George Morgart	Rainsburg	27.75	R:GJ	7317	359.1
E. S. Ferry	New Enterprise	11.58	RJ	6540	356.2
Fred Coxe	Everett	18.83	RJ	7199	353.1
W. D. Koontz	Lutzville	8.75	R:GH	9946	351.7
John S. Hershberger	Everett	10.75	R:GJ	7032	350.7
J. W. Stair	Hyndman	10.92	Mixed	9222	349.8
C. E. Koontz & Son	Lutzville	15.17	R:GJ	6252	339.2
Carl Garland	Buffalo Mills	14.08	R:GH	9253	328.2
S. U. Troutman	Bedford	10.17	GJ	6850	327.1
S. E. Baker	Waterside	9.25	Mixed	7677	309.0
Sam C. Diehl & Son	Lutzville	17.67	Mixed	7609	306.1
Samuel Cessna	Bedford, R. 4	18.00	R:GH	8522	302.6

Berks County—(Northern Berks)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
John A. Kalbach	Hamburg, Star Rt.	24.67	R:GH	10172	346.5
Samuel A. Berger	Hamburg, Star Rt.	11.46	R:GH	10049	344.4
David R. Moll	Hamburg	24.75	R:GH	9318	323.1
W. J. & O. G. George	Lenhartsville	13.60	RH	9622	322.3
E. L. Stump	Shoemakersville	15.47	R:GH	9093	319.9
Harvey Merkel	Kutztown	15.50	R:GH	9947	316.7
Paul H. Wessner	Fleetwood, R.D.	9.26	R:GH	9729	315.9
George D. Hamm	Kempton, R. 2	14.03	R:GH	9614	315.4
Clarence Dietrich	Kutztown	13.66	R:GH	9206	308.6
Ray P. DeLong	Bowers	22.40	RG	6487	308.1
Albert S. Sarig	Bowers	18.53	RH	9635	302.6
John F. Kohler	Kutztown	7.46	R:GH	8711	300.7
Earl E. Bond	Kempton, R. 2	12.58	R:GH	8497	300.0

Blair County—(Blair Association)

W. T. Kephart	Tyrone, R. D.	10.76	RGH:GJ	10325	400.5
K.S. Bagshaw	Hollidaysburg, R. D...	11.18	RGBS	8567	345.5
J. G. Black	Altoona, R. D. 3	10.37	GH:GG	7962	338.7
Frank H. Mattern	Tyrone, R. D. 1	15.19	GG:RG	8383	329.9
Geo. E. Stultz	Williamsburg	9.92	R:GG	7846	319.8
M. Leberfinger	Hollidaysburg, R. D...	17.48	R:GH	8102	303.4

Bradford County—(Troy Association)

Wolfe Lloyd	Troy	8.83	RJ	8285	424.6
H. H. Packard	Alba	11.83	R:GH	10435	366.1
John Lewis	Gillett	8.83	R:GJ	6363	311.3

Bradford County—(Laurel Hill Association)

C. I. Chaffee	Ulster	22.72	RH	11905	404.7
J. K. Doan	Powell	21.89	GH	9055	360.0
Jas. E. Meredith	Towanda, Farm 2	21.75	R:GH	9807	355.0
D. E. Tracy	Milan	12.67	R:GJ	6362	345.9
R. B. Arnold	Milan	20.95	RH	8896	313.3
Damore R. Young	Col. X Roads	16.89	R:GJ	5901	313.2
Jas. E. Meredith	Towanda, Farm 1	13.78	R:GH	8003	308.7
Ray Young	Troy	12.03	R:GJ	5997	307.7
I. P. Chaffee	Ulster	19.84	R:GJ	5682	306.2
Albert Madigan	Towanda, R. 2	16.89	R:GH	8232	303.3
Fox Chase Farms	Towanda	88.00	R:GH	8212	300.7

Bradford County—(Wyalusing Association)

Stanley Allis	Rummerfield	9.97	R:GH	9501	317.4
W. B. Kennedy	Wyalusing	18.79	RH	9433	316.2
H. L. Barnes	Towanda	10.57	R:GH	10068	315.3
Francis Kerrick	Towanda	20.71	R:GH	8277	315.2
Karl D. Shiner	Towanda	13.00	GJ	6532	306.0
Clifford Clapper	Laceyville	6.29	Mixed	8033	305.5
E. M. Miller	Towanda	15.30	RH	9633	303.5
J. H. Howard	Wyalusing	14.45	RH	8457	302.5
S. L. Culver	Laceyville	19.00	R:GH	9233	302.3
C. B. Culver	Laceyville	30.72	R:GH	8853	300.0

Bradford County—(Ulster Association)

Wm. L. Pruyne	Milan	17.35	RH	10077	358.9
Frank Wright	Milan	18.42	R:GJ	6185	337.9
J. A. Olmstead	Ulster	10.48	R:GH	9798	334.0
S. A. Stowell	Milan	17.00	RH	8955	322.5
Jas. Pierce	Milan	19.12	GG:H	7872	318.6
S. B. Van Sice	Ulster	9.33	GH:GG	7981	304.2
O. J. Stevens	Athens	8.82	RH	8272	301.5

Bradford County—(LeRaysville Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Norman White	Wysox	13.65	RH	11088	356.9
H. W. Russell	Orwell	11.02	R:GH	9976	344.7
Roland Jones	So. Apalachin, N. Y.	10.36	R:GH	8754	334.5
J. H. Ford	Rome	8.65	RH	9434	322.0
Jas. Eastman	Rome	6.66	RH	9354	317.7
Olyn Johnson	LeRaysville	14.23	RH	9359	308.5
C. S. Gorham	LeRaysville	16.78	RJ	5682	306.0
L. L. Allis	Rummerfield	14.27	RH	9287	301.9

Bradford County—(Canton Association)

W. F. Bohlayer	Canton	15.74	RH	11385	452.4
R. H. Fleming	Alba	19.97	RH	11675	418.5
Emmer Pepper	Granv. Summit	10.25	R:GH	11559	403.7
R. G. Williams & Sons	Canton	14.26	RH	10729	400.7
Earl Wilcox	Canton	9.56	GH:GJ	9243	372.1
H. S. Wilcox	Canton	18.81		7904	360.1
G. E. Beach	Columbia X Roads	13.71	RH	9245	338.5
Clarence N. Spencer	Canton	17.88	R:GH	8411	319.0
Ralph Jones	Grover	10.50	R:GH	8784	317.4
J. C. Fleming	Granv. Summit	9.88	RG	6701	314.4
Samuel Isaacs	Canton	16.33	R:GH	8772	314.1
H. G. Wright	Canton	11.99	R:GG	6439	308.7
G. H. Moody	Canton	8.58	RH	8163	301.0

Bucks County—(Group No. 1 Association)

Jos. P. Canby & Son	Hulmeville	32.52	R:GH	11282	396.1
C. R. Powell	Bristol	10.74	R:GH	11059	393.7
L. P. Satterthwaite	Newtown	15.93	R:GH	11209	385.8
J. S. Briggs	Yardley	16.23	R:GG	8337	381.0
E. J. Ivins	Feasterville	9.67	RH	10019	364.4
Newlin Hogeland	Yardley, R. D.	16.03	R:GH	9851	359.5
J. L. Stover	Ivyland	14.13	R:GH	8730	337.0
J. W. Hallowell	Ivyland	13.47	R:GH	8914	332.3
Willard W. Wright	Yardley	13.72	R:GH	9462	329.6
Bolton Farms	Bristol	37.04	RG	6672	329.2
A. Satterthwaite	Yardley	15.98	RH	9749	322.5
A. C. Emlen	Germantown	13.36	R:GG	6568	314.2
Franklin Briggs	Woodbourne	18.08	R:GH	9018	312.5
Warner Hallowell	Ivyland	8.98	R:GH	8186	306.1
Milton Satterthwaite	Woodside	12.53	R:GH	8869	301.6
Linford Benner	Langhorne	11.08	R:GH	8085	300.0

Bucks County—(Group No. 2 Association)

Sophie M. Geddes	Danboro	10.00	RJ	7699	459.3
P. W. Smith	New Hope, R. D. 1	14.05	R:GG	7864	387.0
S. Wilfred Smith	New Hope	8.98	RG	7560	367.2
W. D. Yoder	Blooming Glen	15.88	GH	9848	359.6
F. W. Oehrle	Hatboro	5.48	R:GH	10039	355.9
A. Wipred	Wycombe	8.03	R:GH	9549	351.7
J. C. Myers	Doylestown, R. D.	18.62	R:GH	8729	348.8
C. L. Wilkinson	Rushland	14.81	R.GH	9984	346.2
Claud Myers	Plumsteadville	17.02	R:GG	7388	343.5
W. A. Twining	Wycombe	9.84	RH	9781	341.9
E. G. Myers	Chalfont, R. D.	18.79	R:GH	7658	329.7
Isaac S. Gross	Plumsteadville	13.92	RH	9973	327.4
W. H. Yerkes	Buckingham	16.27	R:GH	8981	324.4
M. H. Walton	New Hope	12.36	GG	6830	320.2
E. T. Daniels	Pineville	10.59	R:GH	8956	319.1
C. S. Kriebel	Doylestown	11.43	RA	7364	303.7

Carbon County—(Carbon-Lehigh Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
L. A. Zimmerman	Lehighton, R. 1	23.86	R:GH	13691	442.8
Wm. Steigerwalt	Lehighton, R. 5	13.22	R:GH	10243	366.1
Harry J. DeLong	Andreas	9.99	R:GH	10079	340.8

Centre County—(Centre Co. Association No. 1)

Allen Harter	Bellefonte	8.39	R:GH	12475	452.4
T. C. Kryder	Mill Hall	13.50	RH	12064	412.8
George G. Gummo	Mill Hall	14.30	R:GH	11886	401.0
Hartle Brothers	Bellefonte	16.09	RH	10799	372.6
Samuel I. Corl	State College	7.37	RH	10221	370.2
George H. Wilson	Bellefonte	10.07	R:GH	9714	347.0
John W. Blair	Bellefonte	10.55	RH	9205	337.9
Petters Brothers	Port Matilda	18.44	R:GH	9208	328.0
E. E. Way	Port Matilda	13.94	RG	6712	324.0
Boone Brothers	Bellefonte	15.55	R:GH	8693	322.2
John T. Dunkle	Mingoville	9.55	R:GH	9335	321.8
Western Penitentiary	Bellefonte	77.36	R:GH	9217	321.0
Fern T. Dunkle	Boalsburg	11.33	GH	8962	321.0
Epley White	Bellefonte	8.90	RH	8984	314.9
Fred Davidson	Warriors Mark	10.07	Mixed	7395	312.4
Peck Brothers	Nittany	10.55	RH	9018	309.4
H. L. Wilson	Warriors Mark	9.40	Mixed	7061	301.6

Centre County—(Centre Co. Association No. 2)

J. Fred Slack	Centre Hall	11.85	R:GH	10309	369.2
W. F. Rishel	Centre Hall	9.96	RH	10889	358.3
S. F. Esterline	Greenburr	10.92	RJ	6708	351.0
C. A. Heltman	Loganton	9.69	R:GG	8052	346.5
J. V. Brungart	Smullton	10.79	R:GJ	6311	319.6
A. J. Burrell	Millheim	9.88	RH	9433	313.0

Central Pennsylvania Guernsey Breeders' Association

Mrs. C. M. Schwab	Loretto	13.64	RG	8281	444.2
Victor Kline	Hastings	5.36	R:GG	9218	420.1
Griffith Estate	Ebensburg	19.44	RG	8143	400.9
S. H. Markey	Loysburg	6.84	RG	8923	396.0
D. A. Morrow	Tyrone	7.73	RG	7899	379.3
E. H. Karlheim	Patton	6.79	R:GG	6846	364.4
Aug. E. Farabaugh	Ebensburg	5.00	R:GG	7400	363.5
H. M. Kelly	Ebensburg	11.42	R:GH	10262	358.9
Thad Thomas	Ebensburg	9.68	R:GG	7190	353.1
A. A. Feighner	Carrolltown	8.79	R:GJ	6682	349.1
S. D. Mingle	Williamsburg	12.27	GBS:GG	8600	346.0
Colver Dairy	Colver	14.70	RH	10381	345.3
J. W. Burket	Tyrone	11.36	R:GG	7663	341.1
Wm. Irwin Co.	Ebensburg	15.50	R:GG	6579	341.1
W. J. Hoover	Patton	5.74	GG	6009	335.9
Paul Hoover	Patton	12.08	R:GG	7078	333.7
Wm. Morrow	Tyrone	11.87	R:GG	6941	332.8
M. C. Bagshaw	Hollidaysburg	13.21	R:GBS	7927	331.5
Knarr Bros.	DuBois	31.61	R:GG	6298	328.4
J. E. Hindman	Tyrone	17.67	RG	7043	327.5
Preston C. Smith	Martinsburg	10.78	RH:GG	8842	321.7
A. J. Yahner	Patton	9.42	P:J	5595	317.8
Earl Karlheim	Patton	13.08	R:GG	6391	309.9
E. H. Krumenacker	Carrolltown	13.56	R:GG	6857	307.1
G. Clair Smith	Martinsburg	16.02	R:GH	8776	306.5

Chester County—(Coventry Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Wm. H. High	Phoenixville, R. 4	16.67	RH	11746	402.1
Arthur H. High	Pottstown, R. 3	12.33	RH:GH	10709	380.5
Porter Farms	Phoenixville, R. D.	36.42	RG:GG	7228	374.9
Mrs. R. H. R. Toland	Phoenixville	15.08	RJ	6947	363.3
H. R. Swavely	Pottstown, R. D.	14.08	GG:GH	8692	345.0
H. L. Stoltzfus	Pottstown, R. 2	16.17	RH:GH	9244	342.6
Furman H. Gyger	Kimberton	24.83	H:G	8710	316.3
Pennhursy State School	Pennhurst	67.67	RH:GH	9113	314.8

Chester County—(Chester Valley Association)

Wallace Pearson	Downingtown	23.58	RJ	7563	394.2
Mrs. Mary Carter	Pocopson	16.83	RG:GG	7979	388.6
Dr. Clyde L. King	West Chester	8.33	RJ	7651	380.1
Brandywine Meadow Farm	West Chester	18.33	RJ:GJ	8432	372.1
Oswald B. Piel	Downingtown	13.75	RJ	6625	366.1
John Kent Kane	Glen Loch	38.83	RG:GG	7332	361.9
James Latta	Parkesburg	14.00	GG:GH	7787	350.2
G. Fairlamb Beale	Coatesville	12.42	RJ	7004	345.7
Harry B. Shenk	Elverson	32.00	RG	6558	337.7
Frank A. Keen	West Chester	19.50	RH	9200	317.9
Wm. M. Lloyd	Downingtown	22.58	RJ	5894	309.6

Chester County—(Oxford Association)

Norman Thompson	Oxford	19.88	GJ	9123	438.0
Scott Bunting	Oxford	16.64	RJ	7258	383.5
George Mitchell,	West Grove,	10.75	RJ	7223	362.2
Reid and Dickey	Oxford	7.61	Mixed	9750	351.1
Maurice Michener	West Grove	18.58	GJ	6551	335.1
E. England	Northeast, Md.	11.70	RG:GG	6617	327.6
Harvey Chase	Oxford	33.18	RJ:GJ	6300	326.1
Howard Wollaston	Avondale	13.87	RJ	6263	317.8
Dr. Wm. B. Ewing	West Grove	20.00	RG	6303	313.0
Norman Fell	Nottingham	14.93	Mixed	7859	312.8
J. S. Reisler	Nottingham	8.99	RG	6692	311.2
Edgar Haines	West Grove	17.98	GG	6697	310.0
Thomas Sloan	Oxford	14.99	GH:GJ	8409	307.3
Lewis Brown	Nottingham	15.24	Mixed	7788	300.0

Chester County—(West Chester Association)

Dunwoody Home Farm	Newtown Square	13.24	RA	9478	373.5
Lawrence Folchman	West Chester, R. D.	21.80	GH	10351	361.0
W. I. Reeves	West Chester, R. D.	13.08	GG	7623	357.5
R. E. Sharpless	London Grove	35.81	GJ	7028	335.2
Norman W. Frank	West Chester, R. D.	22.88	GH	9482	328.0
Wm. P. Smedley	Media, R. D.	29.72	R:GG	6414	326.8
Del. Co. Home	Lima	19.33	GH	8848	325.1
William B. Rhoads	West Chester, R. D.	21.95	R:GH	8916	306.5

Clarion County—(Clarion Association)

L. O. Hetrick	St. Charles	8.27	Mixed	8430	391.6
C. F. Willison	Mahoning, R. D.	6.62	Mixed	7848	383.5
J. P. C. King	Summerville, R. D.	5.48	RH	11039	364.4
H. G. Mahle	Miola	6.61	GG	7613	357.4
B. W. Thompson	Clarion	24.60	RH	10240	342.0
R. G. Smathers & Son	New Bethlehem, R.D.	8.93	Mixed	7735	340.4
J. W. M. Gruber & Son	Shippenville, R.D.	20.62	R:GG	6721	339.7
C. &. & Wm. McCauley	New Bethlehem, R.D.	13.66	RH	8862	326.0
Foxburg Farm Herd, Inc.	Foxburg	26.55	RG	6663	325.2
T. H. & T. J. Reynolds	Clarion, R. 1	10.08	R:GH	9264	319.3
Ray Shook	Sligo, R. 3	13.70	R:GG	6481	317.3

Clearfield County—(Clearfield Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Mrs. J. A. Liddle	DuBois, R. 2	8.47	Mixed	8706	393.8
John Flood	Woodland	8.62	Mixed	7317	339.7
S. R. Thompson	Philipsburg	12.90	Mixed	7712	334.8
William Bailor	Curwensville	16.40	Mixed	7840	327.0
G. B. Wachob	DuBois, R. 2	8.41	RGH:GG	7476	303.2
C. O. Mattern	Osceola Mills	14.94	R:GG	6364	302.3

Crawford County—(Titusville Association)

James M. Kelley	Titusville	18.88	R:GG	7518	366.0
Clyde Kelley	Centerville	6.83	R:GH	9975	346.1
J. D. F. King	Titusville	8.03	RG	6326	345.9
O. T. Ongly	Grand Valley	8.21	RH	10301	335.6
A. K. Hummer	Titusville	23.70	RH	9597	334.1
Geo. Matteson	Centerville	14.64	Mixed	8395	330.9
Robert Lewis	Titusville	6.50	Mixed	7448	323.2
Albert Hasbrouck	Centerville	10.68	R:GH	9233	320.7
M. L. Fenton	Titusville	22.26	R:GG	6825	312.3
Norris I. Reed	Centerville	11.78	R:GJ	6347	310.2
Will Hasbrouck	Titusville	14.89	RH	9506	310.1
M. W. Beers	Centerville	12.20	Mixed	7474	302.9

Crawford County—(Sparta-Saegertown Association)

J. G. Sherred	Venango	9.85	RH	10915	359.1
Merle W. Ongly	Centerville	10.10	R:GH	9990	333.2
Harry E. Firth	Spartansburg	8.07	R:GH	8817	313.7
Burl Hayes	Edinboro	17.16	R:GH	8413	312.8
Roy M. Bewley	Corry	10.02	GH	9329	310.8
Arthur Morris	Corry	11.51	GH	8857	307.0
J. L. Goodwill	Corry	10.00	GH	8057	301.3

Crawford County—(Western Crawford Association)

Rosie Fitch	Westford	18.92	R:GH	12651	420.3
H. R. & T. M. Dodds	Adamsville	7.51	Mixed	8995	380.9
J. G. Crumb	Linesville	15.17	GH:GJ	8635	353.9
Ray McConnell	Atlantic	6.75	R:GH	10692	352.1
Andrews & Reaugh	Adamsville	14.00	RH	9665	342.9
W. S. Andrews	Adamsville	15.67	R:GH	9078	310.9

Crawford County—(Crawford-Venango Association)

Harry I. Sharp	Diamond	5.00	RJ	7355	406.8
J. R. Grove	Guys Mills	7.27	Mixed	7581	366.1
E. I. Hays	Townville	8.47	RJ	6730	338.0
D. C. Pettigrew	Townville	8.27	R:GJ	6785	332.0
Geo. C. Merkley	Tryonville	9.28	GH	8849	328.3
A. T. Dempsey	Diamond	10.86	Mixed	7975	314.2
Herbert C. Thomas	Diamond	8.64	Mixed	7057	307.8
Lewis L. Hummel	Cochranton	10.28	Mixed	7852	306.8
John Kester	Cochranton	9.26	Mixed	6982	303.6

Cumberland County—(Division No. 1 Association)

Vance C. McCormick	Harrisburg	5.00	GG	8929	455.8
Ivo V. Otto	Carlisle, R. 6	19.50	RH	11985	424.8
Abram N. Lehman	Carlisle, R. 2	15.58	R:GH	11734	409.8
A. G. Wingert	Mechanicsburg	11.58	RH	11793	408.3
Paul C. Gibble	Mechanicsburg, R. 5	14.92	RH	11610	407.7
E. Raymond Shughart	Carlisle, R. 9	5.50	R:GH	11103	407.3
Geo. E. Wilson	Mechanicsburg, R. 2	11.58	RH	11466	404.8
Mrs. F. J. Hall and Mrs. L. Gilbert	Harrisburg	5.42	R:GG	8647	400.6

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Geo. Nauss, Jr.	Mechanicsburg, R. 4..	13.25	R:GH	11024	375.9
H. K. McCullough	Newville, R. 1	17.58	R:GG	7898	373.7
Elmer G. Ludt	Carlisle, R. 5	14.42	RH	10660	370.5
Albert F. Kost	Carlisle, R. 7	13.42	RH	10739	359.0
C. G. Niesley	Mechanicsburg, R. D.	14.92	R:GH	10473	357.7
Harry Hamsher	Mechanicsburg, R. 4..	6.25	GH	10797	352.4
H. B. McCormick	Harrisburg	7.17	R:GG	7350	349.7
Paul Lehman	Carlisle	10.75	R:GH	9729	342.5
F. D. Myers	Mechanicsburg, R. 1..	26.08	Mixed	9517	330.4
Miss Anne McCormick	Harrisburg	11.33	R:GG	7160	329.4
J. H. Lear	Carlisle, R. 5	11.50	R:GH	9291	328.9
S. W. Zeigler	Mechanicsburg, R. 1..	12.92	R:GH	9386	325.4
J. N. Kruger	Carlisle (Herd 1)	19.74	Mixed	8368	322.0
Joseph N. Conrad	Mechanicsburg, R. 5..	12.58	R:GH	8423	315.2
W. A. Eckert	Mechanicsburg, R. 6..	7.08	R:GG	6905	309.6
William S. Ker	Carlisle, R. 9	21.33	R:GH	9245	307.8
James G. Hatz	Harrisburg	14.50	Mixed	7323	304.1
Mark R. Basehore,	Mechanicsburg, R. 5.	11.50	R:GH	9402	303.4

Cumberland County—(Division No. 2 Association)

Edgar Peffer	Mechanicsburg, R. 1..	11.98	GH	12448	407.7
W. A. Woods & Son	Carlisle, R. 8	10.75	RH	11805	403.9
Samuel D. Basehore	Mechanicsburg, R. 1..	8.45	R:GH	11723	402.9
Hugh L. McMeen	Carlisle R. 6	13.41	R:GH	10676	393.9
Herbert W. Allison	Shippensburg, R. 6...	8.14	RH	11654	392.2
Jesse E. Kurtz	Carlisle, R. 8	9.56	RH	10953	370.1
H. A. Shultz	Carlisle, R. 6	19.01	R:GH	10323	354.3
Fred C. Lehman	Carlisle, R. 9	7.68	RH	10199	344.9
William G. Minnich	Carlisle, R. 6	10.05	R:GH	9419	334.3
Paul Wrightstone	Camp Hill, R. 1	16.83	GH	9682	331.1
Harold E. Evans	Carlisle, R. 8	6.18	R:GH	9815	330.7
J. Percy Heisley	Mechanicsburg, R. 2..	10.13	R:GH	9861	329.1
Donald G. Buterbaugh	Mechanicsburg, R. 5..	13.61	GG	8319	310.8
C. A. Grissinger	Newville, R. 4	8.11	R:GH	3113	306.8

Dauphin County—(Dauphin Association)

C. H. McElwee	Dauphin, R.D.	7.00	R:GH	10860	384.1
Aaron Erdman	Elizabethville, R. D...	17.39	R:GH	11704	371.8
C. K. Fertig	Dauphin, R. D.	8.96	R:GH	10194	333.1
Levi Shafer	Millersburg, R. D.	15.98	GH:Mix	8367	318.7
Daniel C. Romberger	Elizabethville	10.70	RGH:G	8472	311.8
Isaac Reigel	Berrysburg	10.19	R:GH	10113	310.4
Howard Speece	Dauphin, R. D.	18.42	R:GH	9421	309.5
H. H. Deibelr	Millersburg, R. D.	11.07	GH:D	8610	308.7
R. R. & M. R. Rutherford	Harrisburg, R. 1	9.58	GH:GA	7952	301.8

Erie County—(Waterford Association)

H. H. Marsh	Waterford	15.62	R:GH	9668	308.6
A. L. Proctor	Corry	12.91	RH	9165	304.9

Erie County—(Wattsburgh Association)

Fred Estes	Union City, R. 1	13.02	GD:GH	8731	346.2
Karl Rockwood	Waterford, R. 7	15.48	R:GH	7993	324.6
Gerald Johnson	Wattsburgh, R. 3	14.21	R:GH	9013	308.5
Paul Dennee	Wattsburg, R. 4	6.15	Mixed	8006	305.3
County Home Farm	Girard, R. 3	24.34	GH	9036	304.3
G. C. Bisbee	Wattsburg, R. 4	13.67	R:GH	9023	301.1

Fayette County—(Fayette Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Oak Hill Estate	Uniontown	30.53	RG	7825	373.3
John Moreland	Connellsville	9.75	R:GH	9110	363.4
J. Espey Lynn	Vanderbilt	13.58	GG:GH	7892	354.1
G. M. Griffin	Smock	8.92	GJ	7300	349.5
Frank Laughead	Uniontown, R. 5	25.67	GJ	7126	339.9
Miller Allton	Uniontown, R. 4	16.71	Mixed	7389	339.3
Nelson Porter	Brownsville	13.06	GS:GH	7542	314.4
Detmer Cottom	Dawson	12.10	GG	6444	390.3
E. E. Arnold	Vanderbilt	10.05	R:GH	8884	303.6
Chas. Bixler	Uniontown, R. 4	15.55	GJ:GG	6479	301.9
Thos. Bailes	Uniontown	9.71	Mixed	6803	301.5

Franklin County—(Southern Franklin Association)

Irvin Benedict	Waynesboro, R. D.	9.25	RG	7256	388.4
W. H. Stevenson	Midvale	16.59	R:GG	8097	382.6
Herman Oller	Waynesboro, R. D.	11.32	GG	7713	333.6
Clarence Barnhart	Chambersburg, R. D..	10.02	RH	9600	320.4
John Martin & Son	Smithburg, Md.	8.54	RH	8602	310.1
H. A. Stottlemyer	Waynesboro, R. D.	2694	R:GH	8238	300.5

Franklin County—(Western Franklin Association)

J. W. Aughinbaugh	Mercersburg	10.22	Mixed	8013	370.6
R. O. Rhine	East Waterford	8.23	GH:GJ	9130	341.3
Paul Alleman	Mercersburg	10.23	Mixed	7613	338.8
J. W. Hoffeditz	Mercersburg	12.77	Mixed	7824	338.6
Howard Meyers	Mercersburg	6.00	R:GSH	7325	326.3
M. K. Miller	Willow Hill	6.36	Mixed	7695	314.4
Daniel M. Hawbaker	Mercersburg	9.92	Mixed	8301	306.0

Huntingdon County—(Huntingdon Association)

A. S. Ellenberger & Son	Warriors Mark	8.87	GH:GG	9523	385.4
H. L. Grazier & Son	Warriors Mark	11.00	RBS	9325	364.8
Jno. T. Martin	Alexandria	13.04	RH	10643	361.3
O. Gilliland & Son	Franklinville	11.81	GH	8812	350.4
Tussey Brothers	McAlevy's Fort	10.28	RH:GH	9475	348.9
Taylor Brothers	Warriors Mark	20.18	R:GH	8770	342.2
F. W. Eyer & Son	Tyrone, R. 5	30.86	R:GH	8815	339.6
W. C. Henderson	Petersburg	17.98	R:GBS	8036	326.0
N. E. Black	Alexandria	13.57	R:GG	7203	319.0
Roy Peterson	Franklinville	8.46	R:GH	7143	309.7
Leon Cox	Warriors Mark	14.89	R:GG	6292	302.7

Indiana County—(Association No. 1)

Wm. S. Wetzel	Marion Center	10.00	R:GJ	8383	457.5
Clyde Houck	Clymer, R. 1	8.24	R:GJ	7972	409.6
John C. Walker	Marion Center	6.71	GJ	7303	389.3
H. H. Wetzel & Son	Marion Center	10.76	R:GJ	6951	386.7
D. H. Fitzhonts	Homer City	6.94	RJ	6546	370.2
H. O. Kimmel	Shelocta	12.58	RH	10828	355.5
Clark Steele	Marion Center	7.27	R:GJ	7099	349.5
Carl Walker	Marion Center	8.00	R:GJ	6467	341.0
L. W. Robinson, Jr.	Indiana	6.67	RG	6886	332.2
Quay McMillen	Clymer, R. 1	7.75	Mixed	6833	329.7
C. D. Bence	Marion Center, R. D..	13.85	R:GJ	5939	328.1
Irvin Speedy	Livermore	11.64	R:GG	7738	315.4
John G. Henderson	Saltsburg, R. 1	8.71	RG	6279	304.5
R. D. Marshall	Beyer	27.23	R:GH	8525	302.9

Indiana County—(Association No. 2)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Clyde McConaughey	Smicksburg, R. 2	5.57	RJ	8858	471.7
H. A. Lydick	Clymer, R. 1	5.25	R:GJ	7625	369.1
W. Clark Jamison	Home	12.49	R:GH	10515	356.3
L. L. Shank	Clymer	6.00	RJ:GH	7411	351.0
H. M. Barrett	Smicksburg	7.58	RG	6568	334.5
Roy McQuilken	Dayton, R. 2	7.55	GG	6924	326.8
J. P. Kimmel	Shelocta	6.17	Mixed	9292	317.9
J. M. Steffey	Dayton	7.07	RH	8438	310.4
Ralph Minser	Home	13.49	R:GJ	5999	306.9
Duff Barnett	Loop	5.31	Mixed	6213	300.0

Jefferson County—(First Jefferson Association)

A. J. Bullers	Brookville	7.15	G:RG	8372	461.3
R. L. Ross	Brockway	5.69	G:RG	7532	396.7
W. F. Calhoun	Brockway	6.94	Mixed	9289	385.3
C. W. Calhoun	Brockway	8.86	Mixed	7967	358.8
C. G. Bullers	Brookville	5.25	RG	7163	344.3
W. L. Frost	Brookville	8.23	GG:GJ	7321	341.3
Harry Milliron	Brookville	6.55	RH	1330	333.2
A. Larson	Ridgway	12.28	Mixed	8313	330.7
Ralph Allshouse	Brookville	9.00	RG	8716	324.8
Arthur Bullers	Brookville	6.97	RG	7004	321.7
G. H. Gregory	St. Marys	20.49	RH:GJ	8196	318.7
W. J. Youngdahl	Brockport	7.50	GG	6232	310.0
C. P. McMinn	Lanes Mills	10.59	RH	8967	309.5

Jefferson County—(Second Jefferson Association)

J. H. Huber	Brookville	13.65	Mixed	7718	370.5
S. C. Beeman	Brookville	23.49	R:GG	7212	354.0
G. O. Schuckers	Brookville	9.03	RH	8898	332.3
Marice Smith & Son	Mayport	21.37	R:GG	6527	327.0
Dr. F. D. Pringle	Punxsutawney	12.02	R:GG	6430	320.7
E. G. Haugh	Brookville	19.69	Mixed	6618	315.9
Floyd T. Smith	Punxsutawney	5.00	RA	7285	313.4
Hall Brothers	Baxter	20.35	R:GJ	6025	307.6
J. F. Procious	Brookville	20.75	R:GG	5985	306.4

Juniata County—(Juniata Association)

C. D. Stouffer	Port Royal	9.22	GH	12523	424.6
E. J. Cunningham & Son	Mifflintown	14.32	R:GH	12164	410.4
Theorous Kauffman	Mifflintown	13.13	RH	10481	360.6
H. I. Gray & Son	Honey Grove	12.63	R:GH	10045	343.5
W. E. McMeen	Port Royal	13.34	RH	9653	337.5
J. W. Sieber	McAllisterville	12.42	R:GH	9701	331.9
J. Irvin Clark	Port Royal	11.09	GH:GJ	9313	330.0
Carl L. Smith	McAllisterville	21.88	R:GH	9605	329.2
C. A. Musser	Oakland Mills	10.79	R:GH	8829	316.4
H. T. Gray	Honey Grove	15.00	R:GH	8662	306.9
C. I. Degen & Son	McAlisterville	9.11	RH	7973	301.9

Lackawanna County—(Lackawanna Association)

Merwin W. Smith	Factoryville	7.15	R:GH	10217	353.2
Miller Bros.	Clarks Summit	23.54	RH	10223	341.2
E. B. Jermyn, Jr.	Clarks Summit	5.62	R:GG	7466	333.8
Carpenter Est.	Waverly	9.88	RH	9444	315.2
M. E. Northup	Dalton	14.62	Mixed	8218	305.7
Lakeview Poor District		20.00	GH	8865	303.9

Lancaster County—(Garden Spot Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Ira M. Eby	Gordonville, No. 1	17.31	RH	11723	374.0
Mast Stoltzfus	Morgantown	20.13	RH	11446	372.4
M. V. Brubaker	New Holland, No. 2	10.32	RH	11486	371.1
Elmer Stoltzfus	Elverson, No. 3	14.44	RH	9754	332.6
George S. Sauder	East Earl, No. 1	15.07	R:GH	9019	307.8

Lawrence County—(Westfield Association)

W. W. McMillen & Son	Wampum	15.35	RH	11154	400.0
Lauren Thompson	New Wilmington	14.20	RJ	7218	395.0
N. E. Sampson	Volant	10.61	RJ	6312	393.8
J. B. Elder	Volant	7.29	RH	11780	390.6
Arnold Bros.	Beaver Falls	9.58	RG	6797	340.1
James C. Gardner	Enon Valley	15.47	R:GG	6772	329.0
J. W. Bronson	New Galilee	15.45	RJ	6039	323.1
T. 3. Post	New Castle	7.45	RH	8796	323.5
J. W. Martin & Son	Bessemer	29.23	RJ	6533	316.9
M. Patterson	New Galilee	10.87	RJ	5985	308.9
Milo Moose	Volant	9.25	RJ	5621	305.7
H. L. McCurley	Enon Valley	18.04	RJ	5907	304.2
J. C. Wallace	Edenburg	13.59	RJ	5782	303.6

Lebanon County—(Lebanon Association)

M. H. Bennecth	Sheridan	11.48	RH	11803	406.1
J. H. Schott	Lebanon, R. 7	15.02	RH	11488	393.0
R. S. Heisey	Bachmansville	6.25	RH	10919	371.0
Frank E. Fernsler	Lebanon, R. 1	16.64	R:GH	10003	362.9
Frank Heilman & Son	Lebanon, R. 3	13.48	R:GH	10580	354.9
Robert B. Royer	Prescott	9.99	RA	8963	341.5
C. C. Ginrich	Lawn	28.89	R:GH	9626	334.9
H. S. Miller	Myerstown, R. 2	14.06	RH	10157	331.8
Levi Wolfe	Lickdale	12.38	RH	9409	319.7
Fairview Farm	Cornwall	50.87	RG	8690	318.3
C. C. Gingrich	Lawn	21.84	RH	9299	311.4
Warren Whittier	Lebanon, R. 2	38.03	R:GG	6873	310.1
Wayne Keller	Myerstown, R. 2	9.79	R:GH	9395	308.6

Leghigh County—(Lehigh Association)

Harold Ziegler	Wescoesville	8.33	RH	10806	363.3
Allentown State Hospital	Allentown	48.08	R:GH	10457	335.6
Wm. H. Rupp	Breinigsville	12.00	RH	9078	313.5
George Peters	Fogelsville	7.50	R:GH	8541	306.3
Harry C. Trexler	Allentown	8.25	R:GH	6221	303.7

Lycoming County—(White Deer Valley Association)

H. A. Snyder	Montoursville	16.53	RH	13595	512.3
Geo. McCormick	Allenwood	13.33	R:GH	11793	423.2
Clarence Snyder	Muncy	8.76	RH	11404	413.7
Sanitarium Farm	Allenwood	27.22	RH	11714	387.9
J. A. Young	Williamsport	13.36	R:GH	10389	373.0
Wm. L. Waldron	Montgomery	7.24	RH	10066	369.9
State Ind. Home	Muncy	20.93	RH	9566	348.7
P. C. Antes	Williamsport	15.10	RH	10197	342.7
O. A. Shirey	Linden	15.88	RH	10096	339.2
David E. Keller	W'm'sport, Star Route	8.45	R:GH	10049	336.7
Jos. McCormick	Allenwood	9.37	GH	9925	329.4
G. A. Deewall & Son	Montgomery	20.37	RH	9493	324.3
H. R. Paulhamus	Hepburnville	14.03	R:GH	9090	323.3
S. L. Nicholson & Son	Muncy	14.69	RH:G	9095	322.7
S. S. Pauling	Allenwood	8.37	R:GH	9279	320.6

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
McConnells Bros.	Hughesville	22.72	GH:GG	7878	316.7
W. D. Snyder	Hepburnville	16.71	R:GH	9437	313.1
W. H. Price	Williamsport	16.76	R:GH	8732	300.2
McKean County—(First McKean Association)					
F. J. Dieter	Bradford	9.33	GJ	7025	359.5
Tongstrand Bros.	Kane	8.40	GH:GG	8622	356.1
M. S. Comes, Jr.	Smethport	23.13	RH	9848	320.1
F. M. Johnston & Son	Kane	17.39	RG:GG	6691	312.7
Wahlberg Brothers	Smethport	19.10	R:GH	7817	308.7
Mercer County—(Grove City Association)					
Ralph Gillgrist	Harrisville	8.28	R:GJ	7905	424.7
Lee R. Critchlow	Harrisville	9.52	R:GJ	7466	422.2
J. D. Baker	Grove City	13.82	RJ	6421	390.8
Hugh Fergus	Slippery Rock	22.60	GG	7869	384.6
Lucia Paxton	Grove City	7.00	RJ	6811	374.7
J. L. Black	Grove City	5.69	R:GJ	6405	358.7
L. G. Pearson	Mercer	12.67	Mixed	7179	345.0
C. M. Worley	Mercer	11.67	RG	6776	336.4
Mercer Sanitarium	Mercer	16.51	R:GJ	5967	323.6
F. E. McEwen	Mercer	14.73	Mixed	7384	322.2
A. M. King	Mercer	15.61	R:GJ	6451	317.5
I. O. O. F. Home	Grove City	12.58	R:GH	9537	314.6
D. G. Grace	Grove City	8.83	R:GJ	6321	313.8
G. B. McDougall	Grove City	14.69	R:GJ	5955	306.7
Mercer County—(Mercer No. 3 Association)					
John McEwen	Fredonia	10.55	Mixed	8250	359.3
C. C. Stoyer	Greenville	10.50	GG	6316	352.9
M. M. King	Mercer	9.29	RH	9807	327.1
A. S. McCullough	Sharpsville	11.00	RG	6133	322.2
H. M. Hulse	Sandy Lake	12.58	R:GH	8694	317.4
E. S. Reichard	Transfer	16.90	RJ	6464	313.7
W. H. Crawford	Mercer	23.96	Mixed	8168	313.0
H. B. Edeburn	Mercer	13.80	RG	5949	308.7
Mercer County—(Mercer No. 4 Association)					
Jesse E. Smith	Jamestown	8.82	RJ	7578	373.1
R. H. Brenner	Jamestown	22.63	RJ	6072	351.4
F. L. Powell	Clarks Mills	12.70	R:GH	8363	328.7
H. E. Small	Clarks Mills	11.56	Mixed	8214	324.6
C. E. Reimold	Transfer	17.28	Mixed	8092	324.0
St. Paul's Orphan Home	Greenville	19.69	R:GJ	6077	300.0
Mifflin County—(Mifflin Association)					
R. H. King	Belleville	8.33	RH	11950	426.1
Samuel M. Yoder	Belleville	10.67	RGH	11494	420.7
A. C. Yoder	Allensville	13.08	Mixed	8292	368.8
J. B. Byler	Allensville	9.92	R:GH	9281	348.7
David E. Peachey, Jr.	Belleville	11.25	R:GH	10693	348.6
Pius Kanagy	Belleville	16.33	R:GH	10025	347.0
H. H. Bradford	Lewistown	8.08		10259	344.3
Jacob P. Yoder	Belleville	11.33	R:GH	8848	335.7
Fern Aurand	Lewistown	9.08	GH	9835	330.1
Fred W. Brown	Mill Creek	7.67	Mixed	9076	327.4
McClure Snyder	Lewistown	9.83	RH	10418	325.5
B. R. Byler	Allensville	9.08	R:GH	8953	324.1
John Y. Hostetler	Belleville	8.23	GG	6700	315.6
Samuel Mitchell	Lewistown	9.83	R:GH	8704	314.6
George D. Aurand	Lewistown	8.50	Mixed	8626	314.0
Roy H. Brown	Mill Creek	12.25	Mixed	8127	313.2
W. J. Crissman	Lewistown	12.08	RH	9386	304.2

Montgomery County—(Montgomery No. 1 Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
W. H. Landis	East Greenville	20.34	RH	11380	400.1
Shipley School Farm	Gladwyne	11.60	RG:GH	8666	391.0
Levi Schultz Est.	Palm	13.58	R:GH	10364	357.3
W. C. F. Randolph	Royersford	16.05	RJ	6637	353.8
C. Wm. Haywood	Ambler	19.12	R:GH	6463	338.6
Ursinus College	Collegeville	18.31	RH	9536	332.8
Wm. Pfrommer	Red Hill	8.37	R:GH	9037	329.0
Howard L. Baker	Center Square	15.59	RH	9333	326.4
Willow Creek Farm	Penllyn	20.67	RG	6794	323.2
Normandy Farms	Norristown, R. 5	36.15	Mixed	7635	316.8
H. H. Bechtel	Royersford, R. D.	19.50	RG:GH	8216	312.7
A. D. Hunsicker	Royersford, R. D.	23.78	Mixed	8069	309.2
Compton Farm	Chestnut Hill	13.00	RJ	5606	306.7
Mrs. Howard Bieler	East Greenville	13.34	R:GH	8991	306.6
Owen S. Gerhard	Palm	17.59	RH	8257	304.3
C. E. Longacre	Royersford	11.58	RH	8641	303.7
J. L. Wood & Sons	Red Hill	23.50	R:GH	8490	300.7
Montgomery County—(Montgomery No. 2 Association)					
William Stephens	Collegeville	13.91	RA	9295	368.0
Frank Brinckman	Red Hill	9.29	GH	9757	349.3
J. L. Overly & Sons	Red Hill	12.42	R:GH	10118	348.4
F. E. Dixon	Elkins Park	13.83	RJ	6457	345.1
Whitpain Farm	Ambler	5.88	R:GJ	6232	331.2
Erdenheim Farm	Chestnut Hill	21.69	RJ	6282	321.7
George Heuer	Fairview Village	36.12	R:GG	6566	315.8
Potter County—(Ulysses Association)					
Lawrence Buck	Ulysses	12.47	RH	13011	463.2
C. M. Barker & Son	Ulysses	12.00	RA	8313	366.2
Cleon Buck	Ulysses	7.97	R:GH	9620	336.7
H. L. Cass	Ulysses	13.44	RJ	6606	326.9
E. B. Pride	Mills	9.59	GH	8829	326.2
C. W. Warriner	Harrison Valley	11.12	RH	9930	324.1
F. W. Clark	North Bingham	17.78	RG:H:J	7999	312.4
Norman F. Hunt	Westfield	15.89	R:GH	8835	311.6
N. J. Leete & Son	Coudersport	23.01	R:GH	8122	303.1
Schuylkill County—(Schuylkill Association)					
Christ Wagner & Sons	Tamaqua	32.22	RH:GG	10233	379.6
Jonathan Herring	Pine Grove	8.74	R:GJ	6811	354.9
Wm. Gombert	Andreas	5.48	RG	7046	347.4
Thomas Lengel	Pine Grove	17.34	R:GH	9527	342.9
A. T. Riegel	Schuylkill Haven	15.18	R:GH	9915	333.6
A. J. Fidler	Rock	11.21	R:GG	6405	330.9
Arthur Heisler	Tamaqua	16.50	R:GH	9241	330.3
I. Earl Paxson	Schuylkill Haven	12.06	R:GH	9238	327.3
Schuylkill Co. Almhouse	Schuylkill Haven	16.93	RA	8286	326.3
Wm. Tielman	Ashland	23.42	R:GH	8618	320.2
Wm. Buechley	Pottsville	7.81	RJ	5765	315.8
Milton Stump	Pine Grove	10.71	RJ	6570	312.4
Daniel Miller	Andreas	12.64	GG:GJ	7179	309.6
Robert Ludwig	Hegins	22.04		8861	308.5
Paul Lengel	Pine Grove	18.17	R:GG	6170	308.4
Guy S. Reed	Summit Station	14.12	R:GH	9431	323.9
U. E. Rhein	Cressona	9.21	R:GJ	5781	300.0

Snyder County—(First Snyder Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
J. J. Beaver	Beaver Springs	5.92	R:GH	11734	379.4
Elias Ritter	Winfield	9.77	GG	8385	376.0
Harry Klinger	Beaver Springs	6.73	RH	10614	334.8
Ira Coleman	Beaver Springs	13.33	R:GH	8764	313.5
John B. Weller	Middleburg	9.61	R:GH	8788	306.1
Geo. Hummel	Northumberland	7.82	GH	8376	304.7

Somerset County—(Brothers Valley Association)

Kuhns Glessner	Berlin, R. 2	13.56	R:GH	11968	451.1
H. H. Glessner	Berlin, R. 2	13.22	R:GH	9453	366.5
J. J. Miller	Berlin, R. 1	13.11	GH	9744	352.8
R. W. Glessner	Berlin, R. 1	9.84	GH:GS	9368	349.2
Victor B. Glessner	Berlin, R. 2	10.70	GJ:GH	7798	336.5
M. S. Smith	Berlin, R. 3	8.17	RH	9086	331.1
J. G. Suder	Berlin, R. 1	8.50	GG:GH	7656	316.4
F. E. Meyers	Berlin, R. 3	16.37	R:GH	6955	306.3
E. M. Knepper	Berlin, R. 2	18.96	GH:GS	7921	305.7
S. D. Glessner	Berlin, R. 4	6.88	GJ:GH	7101	300.2

Somerset County—(Somerset Association)

J. S. Glessner	Somerset, R. D	15.71	R:GH	10222	380.4
R. S. Stewart	Somerset, R. 1	11.58	RJ	6635	366.9
J. E. Blough	Holsopple, R. 1	12.92	GH:GG	9796	364.0
E. H. Smucker	Friedens, R. 1	10.99	GJ:GH	7807	347.6
F. W. Ross	Friedens, R. 2	8.47	GH:GS	9117	343.8
F. J. Metzler	Somerset, R. 1	19.01	R:GG	6794	318.1
W. B. Lease	Friedens	10.25	R:GBS	7674	317.5
R. F. Lohr	Stoyestwon, R. 1	10.00	RBS	7942	309.0
Mrs. Ellen Shockey	Somerset, R. 1	14.00	GJ:GG	6929	307.8
O. W. Beachley	Somerset, R. 5	16.01	Mixed	7121	304.0

Sullivan County—(Sullivan Association)

C. V. Driscoll	Dushore	11.00	R:GH	12086	407.2
Thomas Doyle	Dushore	8.00	R:GH	11085	384.2
J. W. Adams	Sugar Run	5.50	R:GH	10293	371.4
J. W. Kneller	Dushore	11.08	RH	10945	367.6
F. V. Rohe	Dushore	6.92	R:GH	11187	357.3
Litzelman Bros	Dushore	12.83	R:GH	9873	338.1
F. J. Murphy	New Albany	15.08	R:GH	9566	325.6
Taylor McCarty	Sugar Run	10.58	R:PH	9106	319.3
William Tubach	Dushore	14.00	R:PH	8983	312.7
Milton Taylor	Muncy Valley	14.75	R:GH	8375	305.6

Susquehanna County—(Western Susquehanna No. 1)

Chas. B. Dayton	So. Montrose	34.68	RH	12587	422.0
H. D. & T. J. Brown	So. Montrose	25.64	RH	9866	323.8
W. H. Bush	So. Montrose	20.60	RH	8644	304.2
S. C. Birchard Son	Birchardville	22.55	RJ	5403	302.1
L. M. Thompson	Montrose	37.25	RH	8672	300.0

Susquehanna County—(Western Susquehanna No. 2)

S. E. Horton	Montrose	12.57	R:GH	13198	435.9
Chas. B. Dayton	So. Montrose	33.98	R:GH	12631	423.8
F. R. Cope, Jr.	Dimock	23.92	R:GH	10622	358.6
Archie Ellsworth	So. Montrose	27.92	R:GH	10590	350.7
O. H. Green	Heart Lake	27.42	R:GH	9988	332.2

Susquehanna County—(Gelatt-South Gibson Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Curtis Allen	Nicholson	15.41	R:GH	11680	402.8
F. F. Resseguie	South Gibson	12.00	RH	10621	380.5
E. B. Gillett	Susquehanna	9.75	R:GH	9916	370.2
S. J. Horton & Son	Clifford	19.50	R:GH	10656	361.1
Cordie Allen	Nicholson	16.41	R:GH	10956	360.2
Paul Hayden	Susquehanna	25.08	RH:RJ	9981	351.0
Arthur Bowell	Thompson	16.33	RH	9514	337.0
C. E. Pickering	Thompson	20.25	GH	9095	308.4

Tioga County—(Jackson Association)

Dan Bly	Pine City, N. Y.	11.38	R:GJ	8996	481.4
Frank Bly	Pine City, N. Y.	13.10	RJ	7771	428.3
R. R. Baker	Gillett	14.92	RH	12466	418.3
W. W. Deming	Millerton	17.95	RJ	7421	402.8
Fred F. Tillinghast	Gillett	13.46	RJ	7087	367.1
Victor H. Hurd	Millerton	15.50	GJ	7962	360.4
E. B. Spencer	Millerton	20.40	RH	10378	360.3
N. P. Peterson	Gillett	16.25	GH	9543	340.9
A. D. Prutsman	Millerton	23.79	R:GH	9152	336.4
Harry Audinwood	Corning, R. D., N. Y.	7.02	GH	9433	334.0
Charles Antes	Pine City, N. Y.	13.67	R:GA	7931	332.4
John D. Speer	Corning, R. D., N. Y.	7.88	R:GG	7400	324.2
L. L. Daggett	Millerton	14.77	Mixed	7533	312.7
Frank J. Allen	Lawrenceville	8.37	RJ:RH	6862	307.7
W. A. Segar	Rutland	13.16	Mixed	7866	302.0
A. G. Miller	Pine City, N. Y.	24.07	R:GH	8367	301.5

Tioga County—(Cowanesque Valley Association)

Ivan Kelts	Knoxville	14.84	RH	9992	329.0
Earl Robbins	Knoxville	16.04	R:GH	8946	318.2
Herbert Seeley	Knoxville	19.27	GH:GH	7804	309.1
Earl Peters	Osceola	7.64	R:GJ	7198	300.2

Tioga County—(Wellsboro Association)

Roy S. Bowen	Wellsboro	9.40	RH	14371	466.3
Clark Bowen	Wellsboro	13.41	R:GH	12445	423.4
George B. Butler	Wellsboro	16.73	R:GG	9135	405.8
James L. Warren	Wellsboro	12.97	R:GH	10516	366.1
Ralph Samson	Crooked Creek	14.44	R:GH	10769	365.8
E. C. Howell	Wellsboro	6.09	RH	10592	358.3
Roy Westbrook	Tioga	12.49	GH	9321	341.5
E. A. Van Valkenburg	Wellsboro	10.58	RH	9390	322.4
Fred Erway	Wellsboro	13.32	RH	10325	319.5
Burr A. Dewey	Mansfield	16.60	R:GH	10363	317.7
Perley W. Lawton	Tiadaghton	10.33	RH	8770	313.6
T. T. Erway	Wellsboro	10.39	R:GH	9213	311.0
Claude Carpenter	Crooked Creek	17.58	R:GH	8905	300.4

Union County—(Buffalo Valley Association)

A. C. Slifer	Lewisburg, R. 3	7.75	RH	13878	526.1
Fred D. Dock	Lewisburg, R. 1	11.83	RH	12537	449.1
H. K. Benner	Vicksburg	8.92	R:GH	12003	426.5
H. H. Moll	Millmont	8.83	R:GH	10444	414.8
W. S. Erdley	Lewisburg, R. 3	7.50	RH	11807	409.9
H. A. Walter	Lewisburg, R. 1	11.67	R:GH	11266	409.2
W. J. Erdley	Mifflinburg, R. 3	7.00	RH	11552	405.1
C. E. Erdley	Lewisburg, R. 1	17.83	RH	11498	394.1
J. E. Royer	Lewisburg, R. 1	9.00	R:GH	11635	390.6
A. D. Beaver	Vicksburg	6.67	RH	10548	388.4

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
Oscar Brouse	Mifflinburg, R. 1	8.08	RBS	8729	354.6
Paul W. Young	Lewisburg, R. 3	9.00	R:GH	9559	351.3
J. L. Reitz	Lewisburg	16.92	RH	9642	344.5
W. E. Gast	Lewisburg, R. 3	13.17	R:GH	9421	341.9
Clark S. Miller	Lewisburg, R. 3	15.83	R:GH	8985	340.9
J. A. Roush	Winfield	13.17	R:GH	9370	333.8
J. S. Wehr	Mifflinburg, R. 3	11.08	RH	9974	326.6
J. M. Erdley	Lewisburg, R. 1	14.42	R:GH	9009	322.1
H. H. Reigle	Winfield	10.75	R:GH	8743	312.8
J. S. Zeigler	Lewisburg, R. 4	12.58	RH	8721	306.8
R. B. Eberhart	Winfield	6.00	GH:GG	7473	302.4
R. E. Musser	Lewisburg, R. 3	11.67	R:GH	8490	300.9
Geo. B. Frederick	Lewisburg, R. 3	16.25	R:GH	8506	300.0

Venango County—(Venango Association)

Polk State School	Polk	120.72	RH	12755	436.7
I. S. August	Diamond	10.00	RJ	6970	348.3
Crystal Springs Farm	Oil City	19.37	Mixed	7645	330.0
D. H. Morrison	Van	10.94	R:GG	6887	321.4
E. W. Shaffer	Titusville	14.54	Mixed	6946	306.7
Lyle Dempsey	Diamond	7.95	Mixed	7465	301.0
R. W. Strawbridge	Diamond	6.13	R:GJ	5975	300.0

Wayne County—(Damascus Association)

Fred Hiniman	Tyler Hill	28.30	GH	10293	375.3
G. B. Lassley & Son	Milanville	20.42	R:GH	9802	334.2
Walter Blum	Milanville	9.00	RH	10066	330.9
White Brothers	Callicoon	23.72	GH	8754	327.5
Emmett Olver	Beachlake	19.12	R:GH	9263	321.0
Harry Jackson	Tyler Hill	21.05	GH	9442	316.8
William Lovelass	Milanville	24.62	R:GH	9251	314.1
S. N. Gregg & Sons	Galilee	18.35	R:GH	8708	313.6
E. O. White	Galilee	18.99	GH	8583	306.3

Wayne County—(Wayne Association)

Homestead Farms	Honesdale	53.62	R:GG	7953	404.6
S. Hauenstein	Waymart, R. 1	14.72	R:GJ	7519	384.7
S. O. Snedeker	Waymart, R. 1	17.45	R:GJ	7305	380.2
W. F. Hauenstein	Waymart, R. 1	19.86	RJ	7205	372.3
R. G. Erk	Prompton	35.04	R.GJ	7486	350.9
H. A. Robinson	Honesdale	9.57	RJ	6493	349.6
Geo. Rosener	Aldenville	10.79	R:GJ	6769	348.4
George Erk	Seeleyville	28.05	RJ	6025	338.8
E. H. Ledyard, Jr.	Waymart, R. 1	20.00	GJ	6143	332.8
G. Smith & Sons	Seelyville	23.83	RJ	6524	332.5
E. E. Kinsman	Honesdale, R. 2	25.01	RH	9257	310.8
C. T. Box	Honesdale, R. 3	8.00	RJ	5436	306.3
R. A. Trevethan	Honesdale, R. 1	20.13	R:GH	7350	300.9

Warren County—(Warren Association)

Warren State Hospital	Warren	69.50	R:GH	10558	368.4
G. G. Carter	Bear Lake	8.58	GH:Mix	9302	366.9
A. F. Dyke	Warren	18.25	RG:GH	7363	341.6
Rouse Hospital	Youngsville	41.50	R:GH	9654	340.5
Paul Lindell	Akeley	16.83	GH:GG	8694	322.3
B. E. Firth	Russell	16.17	GH:GG	8308	316.2
J. A. Lopus	Sugar Grove	11.83	GH:GG	7893	308.7

Washington County—(Washington Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
R. L. Careter & Sons	Hickory	25.19	RH	13046	413.5
P. F. Morris	Charleroi	15.22	RJ	7629	378.9
W. L. Hutchinson	Washington	12.36		11923	377.8
R. B. McNary	Eighty-four, R. 1	12.31	R:GG	7727	374.7
Pa. Training School	Morganza	32.08	RH:RJ	8382	335.1
Lawrence McIlvaine	Bentleyville	8.54	R:GG	7068	366.1
A. W. Morrison	Eighty-four, R. 2	10.13	GJ	6764	346.3
A. L. McCracken & Son	Charleroi	12.00	RJ:RH	6788	341.6
Leroy H. Robinson	Coal Center	21.78	RJ	6917	342.0
Lloyd D. Linn	Washington, R. 9	12.24	R:GH	10491	372.8
J. A. Dinsmore	Washington, R. 5	22.24	RJ	6415	308.0
H. C. Cook	Burgettstown	13.82	R:GH	7884	301.9
McClelland Bros.	Canonsburg, R. 2	20.30	RH	9850	300.0

Westmoreland County—(Westmoreland Association No. 1)

F. M. Kintigh	Irwin, R. 2	10.96	Mixed	9751	390.8
Miss I. C. Wohlwend	Salina	10.09	RBS	9289	376.7
W. F. Bush	Jeannette, R. 1	9.43	Mixed	8175	343.2
J. M. & C. A. Lemon	Saltsburg	12.00	R:GH	9258	330.7
George H. Blank	Jeannette, R. 1	15.73	R:GH	8401	312.3
A. L. Myers	Parnassus, R. 1	9.79	Mixed	6988	309.7
E. H. Kemp	Greensburg, R. 4	15.34	Mixed	7688	304.5

Westmoreland County—(Westmoreland Association No. 2)

Westmoreland Co. Home	Greensburg	20.88	RH	11266	363.2
John Moffat	New Alexandria	9.44	R:GG	8590	361.2
Paul A. Hugus	Latrobe	25.22	RJ:R	8381	333.3
G. R. Funk	Hunker	19.30	Mixed	9222	331.1
Martin Farm	Ligonier	16.72	R:GG	6675	330.7
Frank Sanders	Smithton	11.19	GH	8485	326.4
J. M. Leighty	Tarrs	19.94	Mixed	8176	325.4
Harry W. Cole	Greensburg	7.97	Mixed	7710	324.2
Lobangier Bros.	Mt. Pleasant	9.71	R:GH	9434	323.7
S. O. Kelly	West Newton	10.44	Mixed	7741	306.0
J. E. Wineman	Youngwood	15.69	R:GH	8381	301.7

Wyoming County—(Wyoming Association)

M. H. June	Tunkhannock	8.76	R:GH	10652	375.5
C. D. June	Mehoopany	18.68	RH	10594	360.1
O. H. Love	Mehoopany	16.27	GH:GG	8801	326.4
J. J. Pierson	Mehoopany	8.36	P:GH	9460	324.7
J. B. Sheehan	Mehoopany	10.27	GH	9235	323.5
Clifford Robinson	Mehoopany	9.89	GH	8990	319.2
Rodney Decker	Tunkhannock	7.93	GH:GG	9299	313.1
Rex Denison	Mehoopany, R. 1	12.00	P:GH	7609	306.4
Charles Love	N. Mehoopany	10.12	R:GG	7322	305.4

York County—(Northern York Association)

N. E. Rishel	York, R. 8	12.25	RH	12105	413.7
Geo. B. Livingston	East Berlin	6.58	R:GH	11424	403.9
J. A. Poorbaugh	York, R. 3	28.08	R:GG	8218	373.8
Wm. F. Dummer	Mt. Wolf	11.67	GH:GG	9714	350.6
J. J. Hamme	Abbotstown	9.75	RG	7154	346.2
J. Raymond Arnold	Hellam	43.17	R:GG	7238	341.4
Frank L. Krall	East Berlin	19.58	RH	9976	334.9
W. W. Little	Hanover	17.58	RG	7430	331.2
C. Allen May	Dover	15.96	RG	7035	327.6
C. C. Livingston	Abbotstown	12.42	R:GH	9498	319.6
Haines Acres	York, R. 7	17.00	RH	8588	302.0

York County—(Southern York Association)

Name	Address	Ave. No. Cows	Breed	Lbs. Milk	Lbs. Fat
J. S. Murphy	Woodbine	20.07	RH	11732	376.5
Geo. W. Wambaugh	Delta	14.38	Mixed	8034	353.1
J. Roy Showalter	Woodbine	26.25	GH:GG	9235	334.2
W. S. Grimm	Red Lion	41.43	RH	9912	328.1
L. G. Thompson	Delta	10.13	R:GH	8939	324.7
H. J. Handley & Son	Delta	10.13	R:GH	8939	324.7
C. F. Snodgrass	Highrock	18.19	R:GH	9189	314.0
G. C. Krout	Glen Rock	10.09	RH	8719	311.3
D. R. Posey	Woodbine	12.95	Mixed	8174	306.0
Dale D. Kilgore	Woodbine	12.98	R:GG	7663	300.9
W. M. Carico	Delta	21.16	GG:GH	7238	300.4

End of Volume